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CONTENT

April 2015 // Issue 33



168

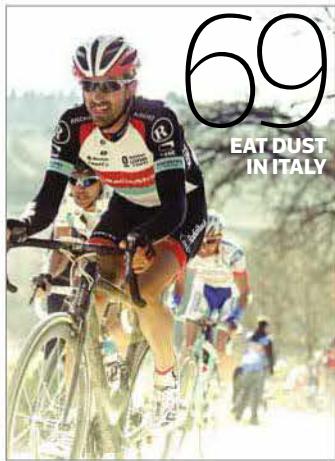
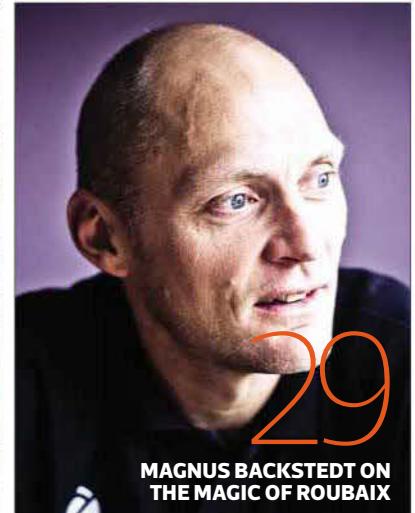
SPORTIVE: TOUR OF FLANDERS Help Me, Ronde

The Ronde van Vlaanderen sportive is the closest you can get to riding the Tour of Flanders without being a pro. Just don't expect a smooth passage...



CONTENTS

April 2015 // Issue 33



17 UP FRONT Lead Out

- Cannondale's Synapse gets a disc makeover
- Gear from Look, Lightweight, Elite and more
- Roubaix winner Magnus Backstedt
- Cyclist heads for the lab to get fat-tested
- How to find the right saddle for you
- What causes 'speed wobble'?
- Custom painting – the ultimate personal touch
- The inside track on car racks
- Raising dust on the Strade Bianche
- Why coffee is more than just a treat
- Frank Strack on why it's not always a race

80 THE BIG RIDE: FRANCE Storming The Fortress

Vercors in France lies in the shadows of the Alps and Mont Ventoux, but is cycling heaven itself.

98 PERFORMANCE: MASSAGE The Knead For Speed

No pro would go without their massage after a hard day in the saddle, but it can benefit you too.

106 PROFILE: PETER SAGAN Who's The Man?

Peter Sagan is thinking big as the Tinkoff-Saxo rider gears up for a career-defining season.

116 RIDE: IRELAND Out Of The City

Cyclist heads to the Wicklow Mountains near Dublin for the cream of Irish riding.

128 PRO SCENE: RACE TACTICS How To Win A Race

Race day isn't always about who's fastest – strategy has a growing say in who finishes first.

136 INSIDER: MAVIC Mavic Mystery Tour

After more than 125 years, the French company is still working away at reinventing the wheel.

146 SPORTIVE: HAUTE ROUTE Some Like It Haute

This five-day trek through the Dolomites and Swiss Alps will test the mettle of any rider.

158 TECH: GROUPSETS Group Dynamics

What are you actually getting for your cash when you upgrade to a more expensive groupset? We have the answers...

168 SPORTIVE: TOUR OF FLANDERS Help me, Ronde

Cyclist gets a taste of what the pros go through on the Tour of Flanders. Spoiler: it involves cobbles.

183 REVIEW Bikes

New bikes from Festka, Colnago, Focus and Cube.

208 BUYER'S GUIDE Stockists

Where to find the stuff you've seen in the mag.

210 LAST GASP Felix Lowe

Our resident columnist reveals how Team Sky plan to turn around their fortunes.



NO SHORTCUTS

Road cycling is one of the most physically demanding sports in the world. Your machine helps you in your fight for the win, but if your main competitor is also on a FOIL, there is no escape. You have to sacrifice, you have to overcome the pain, and only your legs will make the difference to propel you on the top of the podium. To become the Australian Champion.

ED'S LETTER

Cyclist
April 2015 // Issue 33

Photo George Marshall

80

The Vercors region of southern France serves up an enviable mix of tunnels, clifftop roads and stunning views

Lorry driver strikes... surly waiters... execrable pop music... I'm trying to think of all the things that are bad about France. Don't misunderstand me, I love France, and the French, but sometimes it seems so unfair that France should be so blessed as a nation that I have to remind myself of its occasional failings just so I don't feel too bad about not living there... *politicians who can't keep it in their pants*.

As a cyclist it's hard not to be dumbstruck at the wonders that France has to offer. There are the mountain ranges of the Alps and the Pyrenees, both crammed with cols that offer all the beauty, challenge and sporting heritage that any rider could ever want. Rightly they have become places of pilgrimage for the devout roadie, but tucked in between those regions are destinations of such breathtaking riding quality that, in any other country, they would be considered unmissable, and yet in France they remain gloriously undiscovered thanks to the presence of their more famous neighbours... *the Gallic shrug (simultaneously lazy and dismissive)*.

One such place is the Vercors Massif, nestled discreetly on the edge of the Alps (see p80). If a gang of 12-year-old cyclists had been asked to design a fantasy riding venue, they would have come up with Vercors. It's all crazy tunnels, vast gorges and winding roads that have been carved into vertical cliff faces. And it's virtually traffic-free... *squat toilets (we're not animals)*.

Throw in the fact that the weather is nice, the drivers actually seem to respect cyclists, and that France has some of the best food in the world... *except snails (no, they are not a delicacy, they are repulsive little balls of rubber)*... and it's hard not to get rather jealous. It's a good job we're only one country away.

If a gang of 12-year-old cyclists had been asked to design a fantasy riding venue, they would have come up with Vercors



Pete

Pete Muir, Editor

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53

Your bike is a blank canvas just
waiting for the frame-painter's art

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lead out

All the stuff that makes you glad to be a cyclist



Back in black

Cannondale has reintroduced the Synapse with disc brakes. Is this now the ultimate do-it-all road bike? □

Words **STU BOWERS** Photography **DANNY BIRD**



We first saw Cannondale's new Synapse platform back in issue 10, when we got hold of Peter Sagan's very own bike, complete with sweat streaks, energy gel residues and Belgian dirt. Things have moved on since then. In its attempt to provide Sagan with the perfect race weapon for the cobbles of northern Europe, Cannondale has updated one of the most capable do-it-all bikes on the planet, offering a heady combination of speed and comfort, and now it has added disc brakes into the mix. Cannondale's senior project engineer, Chris Dodman, was a key figure in the creation of this new range-topping Black Inc version of the Synapse, and he has a lot to say on its development, so we'll let him tell the story: 'Functionality is at the heart of the bike, and so that's why we made 11 different sizes, with three different fork rakes, to ensure that each bike's characteristics would be consistent throughout. We developed the split seat

tube as it's the best combination for stiffness and weight. A wide seat tube at the bottom bracket shell is optimal for lateral stability, but that adds extra weight and also does not flex [vertically] much. Using two smaller cylindrical tubes means we can move the material further outboard where it's needed for lateral stability, plus removing the centre axis [of the seat tube] provides greater [vertical] flexibility. Think of it like skiing down a hill. You are much more stable if your legs are apart, plus you can more efficiently absorb bumps.'

'The smaller-diameter seatpost also flexes more, and because the seat tube is narrower they work together and both flex more. The geometry means there is more slope on the top tube, plus the seat clamp is integrated into the frame, resulting in a more exposed seatpost. This is key in letting it flex to add comfort. Being aero was never a focus, but we've since found this works well aerodynamically.'

'Discs, of course, increase the frame weight but only by around 100g, which is a small gain

given what they bring in terms of performance. To facilitate discs, the fork has undergone a lot of development. Lateral stiffness needs to be very good for the disc brake to perform optimally, and we have developed a forward facing dropout. This has two benefits. One is that it transfers the [braking] load back into the dropout, and the other is that it ensures the wheel stays located centrally.'

'We did a lot of tests with the [pro] team and mechanics for wheel changes. It's a huge concern for them, and an ongoing problem that we face with disc brakes in the pro peloton. We timed the wheel removal with the Synapse and found it was actually quicker by a few seconds than a regular fork and calliper brake. That is the main reason we did not develop a thru-axle design. We tested this also and it increased the wheel change time by four or five times. Also a thru-axle needs to use larger bearings in the hub, which means more weight and more seal drag. We've tried everything and talked with a lot of people. The mechanics pointed out that



Cannondale Synapse
Disc Black Inc, £6,500,
cyclicsportsgroup.co.uk

a thru-axle is simply something else in your hand when you're trying to change a wheel and that's the kind of thing no one really thinks about. It's very easy to just go with new technology because it's there, but it's not always necessary. We looked to our engineers for solutions and what we have come up with gives us exactly the performance we want.

'We also worked hard on the cable routing, especially in the fork. I wanted the hydraulic brake hose to be routed internally, and for it to go in the straightest line possible from the lever into the fork crown. It's the hardest place to put a hole for a cable entry point, due to the huge forces this area sees, but that's where I wanted it so that's where we put it.'

'We also developed our own crank, the Hollowgram SiSL2, and particularly the one-piece spider. It's 200% stiffer than bolting on chainrings. We researched the design and ten radial spokes are used frequently in high performance car wheels as this is the best combination for weight and stiffness. So it looks nice and brings real shifting benefits.'

'In the Cannondale workplace, we've had employees setting their fastest ever Strava segments on the Synapse Disc, over a SuperSix Evo. The Synapse Disc has set a high bar for us to beat, and the Evo platform is the obvious place to develop next. But we will aim to beat it in different ways, because ultimately we don't want the two bikes to compete with each other. We would still like people to feel like they needed both.'

That's what the man who built it has to say, so all that remains is for us to throw a leg over it for a full test to see if it really lives up to its potential. Look out for our review in a couple of issues' time. 

'Discs increase the frame weight but only by around 100g, which is a small gain given what they bring to the bike in terms of performance'



Rapha Aerosuit

£230, rapha.cc

You may remember a photo of Chris Froome that circulated around the internet last year – and Rapha won't thank us for reminding you – that showed his severely sunburnt back in the pattern of Rapha's Team Sky mesh skinsuit. Despite that embarrassment, the lure of marginal gains is so strong that Rapha has made a skinsuit for the masses, only with a little more modesty, and a lot more protection from the sun.

The Aerosuit uses the Pro Team Lightweight bibs as the lower section, while the top half is basically the Pro Team Aero Jersey with sections of the same mesh as used with the Team Sky skinsuit. Rapha designer Graeme Raeburn explains that comfort is as much the priority as aerodynamics: 'Without layered bib straps, the stress is dissipated through the highly stretched, close-fit shoulders – it feels like it's barely there. Additionally the pockets are super stable and supported, meaning there's no twist in the top when loaded. It's simpler.'

The chevron motif on the Aerosuit was created in conjunction with design studio Accept & Proceed, and is based on a graphic representation of the performance data of Team Sky rider Peter Kennaugh during the 2013 Tour de France. The length and width of the chevrons represent the distance, intensity and elevation gain of each stage of the Tour.

With the advantages of a one-piece construction, Rapha could produce more variations, Raeburn suggests: 'Team Sky have a few versions for different conditions, so depending on demand, we might see this translate into versions for different environments.'



Lightweight Meilenstein Obermayer

£4,150, lightweight.info

 When Lance Armstrong ruled the Tour de France, he demanded five sets of Lightweight wheels to race on. Founder Heinz Obermayer replied that he could have two, and they wouldn't be delivered until Armstrong had paid the invoice. And, boy, will you pay if you want a pair of the company's new top-of-the-line Meilenstein Obermayers.

For your £4,150 you get a set of wheels that, at a stated 935g, can lay claim to being the lightest in the world. Yet these are no flimsy climber's wheels. Lightweight does

recommend a system weight limit (rider plus bike) of 90kg, but that's more generous than some of its competitors.

Weight aside, its main feature is a unique construction whereby the spokes' fibres are woven into the rim, creating a strong and stiff interface, far more suitable for carbon structures than drilling holes and inserting metal spoke nipples. This latest version has a revised rim profile, with the sharp edge of the rim rounded off for improved aero performance plus a redeveloped brake surface that should dramatically improve wet weather braking.



ILE Default Mini backpack

£145, vamperformance.com
ILE (Inside Line Equipment) was started by Eric Fisher, whose commitment to his craft was such that he took to living in the warehouse where he produced each bag. Since then, ILE has grown, but that same attention to craftsmanship is still apparent in its bags, such as the 18-litre Default Mini. Made from waxed canvas with a vinyl inner and taped seams with a roll-top closure, the Default Mini has a touch of the old school about it, which we rather like.



Bike Hawk GPS tracker

from £90, bike-hawk.com

It's a familiar story: bike gets nicked, you get sad. But John Pryce-Robertson wanted to get even, so he set up Bike Hawk to create bike components with built-in GPS trackers. Simply install the tracker headset plug or seatpost and sync to your phone and be safe in the knowledge that Bike Hawk will instantaneously alert you should your bike start making an unsanctioned outing. Bike Hawk components also double as live trackers too, so ride data can be logged in Strava.



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AUTUMN/WINTER COLLECTION



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Astute Skylite VT saddle

£200, saddleback.co.uk



As you'll see from our feature on p45, saddles are about more than looks if you're seeking a comfy perch. Astute, a new brand to the UK market, has both the looks and a lot of features specifically geared towards protecting your nether regions.

The Skylite VT shown here sits in the middle of the range, and at £200 it's a nod toward the premium quality of the product (it's still a lot less than the range-topping Skycarb SR

at £360). Astute's brand manager, Andrea Rizzato, tells us the design has focused on vibration absorption to enhance comfort for the rider. This is achieved by setting the full carbon rails into a rubber mount at the rear and using a three-layer memory foam upper that, Rizzato claims, is used in Aston Martin sports car seats. The microfibre cover on this model feels luxurious and is protected on the corners by a reinforced layer. Two different widths and an array of base colours are available, to match both your backside and your bike.



Turn Zayante M30 chainset

£239.99, upgradebikes.co.uk

The Travis song 'Turn' has the record for the most number of repetitions of the word 'turn' in a song, narrowly beating 'Turn, Turn, Turn' by The Byrds (25 to 24). In the cycling world, the record for the most repetitions of the word 'turn' on a crankset goes to Praxis Works (four) and its new line of chainsets called, unsurprisingly, Turn. Built around a 30mm BB spindle, and weighing 739g, the hollow-forged Zayante looks set to hit the high notes on stiffness-to-weight ratio, yet at £240 offers a high-value antidote to many other crank offerings.

Bontrager Flash Charger TLR pump

£99.99, bontrager.com

Inflating tubeless tyres can be frustrating. The problem lies in getting enough continuous pressure to seat the bead of the tyres so the tyre is held to the rim in an airtight way before it can be fully inflated. Riders often resort to using CO₂ canisters to get a sufficient burst of air, but the Flash Charger allows you to pump air into an auxiliary chamber that can then be dumped into the tyres at high pressure, before levelling off to a constant flow of air to ensure the tyre remains seated.



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Elite Real Turbo Muin

£1,099, madison.co.uk



Did you know you can make an indoor trainer for £20 with a set of rolling pins, an old inner tube and some plywood? At 55 times that cost, you'd hope the Elite Real Turbo Muin has a little more to offer.

The Turbo Muin, released last year, followed the trend towards direct-mount turbo trainers where instead of mounting the rear wheel onto a resistance unit, the rear wheel is removed and the bike mounted directly onto the turbo's own integrated cassette. It's a clever idea that prevents tyre wear and increases the potential resistance. While the original Muin provided speed data that could be translated into power output, it lacked Garmin-friendly ANT+ output and you couldn't adjust the resistance. With this iteration, Elite has gone all out in an attempt to match the data junkie standards of the Wahoo Kickr or Tacx i-Genius trainers.

The Real Turbo Muin uses the same fluid resistance as the original plus electromagnetic power to create adjustable resistance equivalent of up to an 18% incline. The Muin is also able to render virtual reality courses and follow routes on Google Street View.



Buxum Tourmalet

£650, buxumbox.com

The Buxum Tourmalet isn't a high-altitude gentlemen's club, but rather it's an aluminium bike box designed to protect your pride and joy from even the most butter-fingered of airport baggage handlers. In fact, it's so robust, it even stood up to a shooting.

'We tested one of the prototypes on more than 100 flights and it's still going strong,' says Buxum's founder, Ed Morris. 'We even shot one up with a 12-bore shotgun and it survived.' Heady claims indeed, but ones borne out by the Tourmalet's tough aluminium panels, industrial latches and heavy-duty riveted construction. However, it's the slick internal mounting mechanism that most stands out. Simply remove both wheels and secure your bike's dropouts onto the clamps at either end, thereby suspending your bike inside the box. Then it's just a matter of bars off, wheels in, lid on.

At 12.5kg the Tourmalet is a relatively weighty bike box, but should still come in at below most airlines' restrictions.



RONDE VAN VLAANDEREN
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Look Keo 2 Max Blade pedals

£109.99, fisheroutdoor.co.uk



With a strong claim to having invented the clipless pedal, Look remains a titan of the road pedal scene. But after the release of the PP65 in 1986, not a great deal changed in the basic design of Look pedals for quite some time – the pedal has historically used a metal spring to preload a plastic or composite rebate to hold the cleat in place. In 2011 Look shook things up with a carbon leaf spring to tension the pedal, which reduced weight substantially while increasing the strength of retention. The resulting Look Keo Blade was hi-tech but pricey, but now with the filter down of technology to the Keo Max, we can now enjoy a similar but more affordable system. The Max Blade is inferior to the Blade only as a result of the composite body, rather than carbon, and it has a steel spindle in place of titanium. Beneath a set of shoes, no one will know the difference.



RoadHawk Ride R+ camera

£149.95, dogcamsport.co.uk

The Roadhawk Ride R+ by helmet camera specialist Dogcam is a full 1080p HD camera that weighs only 62g and, despite the name, was not designed for spying on pooches. The waterproof and reinforced camera uses a laser pointer to demonstrate the line of sight, which helps align the camera when mounted to the handlebar. A wrist-mounted remote can turn the camera on as well as switch modes between photo and video. It also boasts a loop mode, meaning the camera will continue recording when the SD card is full, by overwriting the earliest part of the video.

Skratch Labs Exercise Hydration Mix

£13.95 per bag, silverfish-uk.com

Skratch Labs founder Dr Allen Lim has a CV that reads like a recent history of the development in sports science. Having worked with World Tour teams such as Radioshack and Team Garmin as sports scientist and cook, he seems well qualified to be delving into a new branch of sports nutrition products. The main hook isn't crazed performance claims, but rather a set of nutrition products designed to avoid 'gut rot'. They use natural ingredients and low sugar levels, and they're actually quite tasty.





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Q&A

Magnus Backstedt

The Swede-turned-Welshman talks to *Cyclist* about winning Paris–Roubaix and his switch to Ironman triathlon

Interview JAMES WITTS Photography JAKE MORLEY

Cyclist: You raced in the Ironman World Championships in October last year. How did that go?

Magnus Backstedt: It was a long day! I'd got to Kona [Hawaii] a couple of weeks before the event and on my first training run my calf went 'ping'. After a fortnight on the acupuncturist's table, come race day it felt better. An okay swim [3.8km] set me up for the bike [180km], but every time I went over 400 watts my Bianchi seemed to hold back. It transpired the chainstay and seatstay on the non-driveside were mush. On top of that I received a drafting penalty.

Cyc: Did you reach the 42.2km run?

MB: Yes, but about 40 minutes down on what I'd planned. The first 10km were great but a kilometre later the calf pain returned, at which point I sat down on the pavement and had a long think about what to do. I thought about pulling out but I had my two daughters

with me and thought that would set a bad example. Also, I fathomed that even if I walked the last 31km I'd still finish in around 11hrs, which some triathletes would kill for. [He finished in 11hrs 12m.]

Cyc: At your cycling peak, you weighed 90kg-plus. How has your body held up to the stresses of running?

MB: For starters I'm about 4kg lighter now. It's been interesting though, because training's been about not getting injured. My fastest marathon is 3:30 but that was at an average heart rate of 130bpm, which isn't even trying. I'm still conditioning running muscles and joints, and have only just begun to run nearly flat-out. I know I have a 3hr marathon in me without any trouble.

Cyc: What are your plans for racing Ironman in 2015?

MB: I've got a professional licence! It's probably a year too early but why

Age: 40
Nationality: Swedish
Teams:

1996–1997
Collstrop-Palmans (Swe)

1998–2001
GAN (Fra)

2002–2003
Team Fakta (Den)

2004
Alessio-Bianchi (Ita)
2005–2007
Liquigas-Bianchi (Ita)
2008–2009
Slipstream-Chipotle (US)

2012
Team UK Youth (UK)

not? I'm racing Ironmans in Lanzarote, England, Sweden and Wales, and another long-distance event in Barcelona. That's a lot for Ironman but I improve the more I race. It's the cyclist in me. I'm a different beast when I pin on a race number.

Cyc: You were a different beast on 11 April 2004 – the day you won Paris–Roubaix. Was it a race you always dreamed of winning?

MB: Did I win any other race? I lived, ate and breathed Roubaix. I loved the fact you could race 100 days in a year and they could be the same but this one day was unique. The heritage, the atmosphere, everything. As a young kid, reading the magazines and seeing these gods. Blood, mud and tears. It was magical.

Cyc: How did the race unfold?

MB: When that alarm went off on race day, I felt good. We'd been damaged by injuries at the Tour of Flanders so only started with six riders [eight permitted]. But we still had a strong team at Alessio-Bianchi, including Fabio Baldato [won two stages of the Tour de France in '95 and '96] and



© Andrea Tafi [won Roubaix in '99]. Early on in the Arenberg Forest I lost the lead group because I was stuck behind another rider. The stones were a nightmare but I had to risk overtaking or I'd lose the leaders completely. Unbelievably I closed the gap like it wasn't there. Baldato was in that lead group and asked me how I felt. I told him I thought the mechanics forgot to put my chain on – things were great. Baldato then dragged me into the cobbled Le Carrefour de l'Arbre section before riding onto the Hem [another cobbled section about 6km from the finish].

I remember in near slow-mo flicking my way past this massive stone and thinking if everyone avoids that, it'd be a miracle. At that split-second I hear a hissing and it's Johan Museeuw [who was going for his fourth Roubaix victory]. After that it was about beating the guys on the track...

Cyc: How did that sprint pan out?

MB: I entered the velodrome with Fabian Cancellara, Tristan Hoffman and Roger Hammond, and it was Hammond who worried me most. We'd been training together for a few years in the UK

Backstedt is married to Welsh cyclist Megan Hughes, who won bronze at the junior World Track Championships in 1995

'All of a sudden I'd become a bike rider that people kept an eye on. Roubaix enhanced that reputation, heightened by coming fourth in 2005 despite breaking my wrist'

and I knew what he was capable of. Thankfully I'd ridden a fair bit at Newport and on an outdoor track in Cardiff so had some form. I was also aware that, though we were in the velodrome, road rules applied, which means you can overtake underneath not just over the top. That was my saviour because on the back straight I started my sprint at the same time as Hammond. I knew Roger would head up the track to fend off Cancellara and I snuck through on the inside.

Cyc: How did your life change after winning the Queen of the Classics?

MB: It was a childhood dream – I'd had posters of Gilbert Duclos-Lassalle on my bedroom wall [Duclos-Lassalle won Roubaix in 1992 and 93] – but the biggest change had come in 1998 when I won my first (and last) stage of the Tour de France. All of a sudden I'd become a bike rider that people kept an eye on. Roubaix enhanced that reputation, heightened by coming fourth in 2005 despite breaking my wrist.

Cyc: You mentioned training with Roger Hammond in the UK. Why did you end up moving from your native Sweden?

MB: I married Megan [Hughes, from Wales] in 2000. We were actually based in Belgium at the time of winning Roubaix but the weekend after I won we moved to Wales nearer Megan's parents. God, that was a crazy time. I had the media commitments and all sorts of crazy stuff. In fact, soon after I'd won I took a load of British kids out on a training ride. They were pretty good. That group included Luke Rowe and Pete Kennaugh.

Cyc: Your wife was a quality cyclist in her own right of course...

MB: She's not one to talk about her cycling career but she won junior



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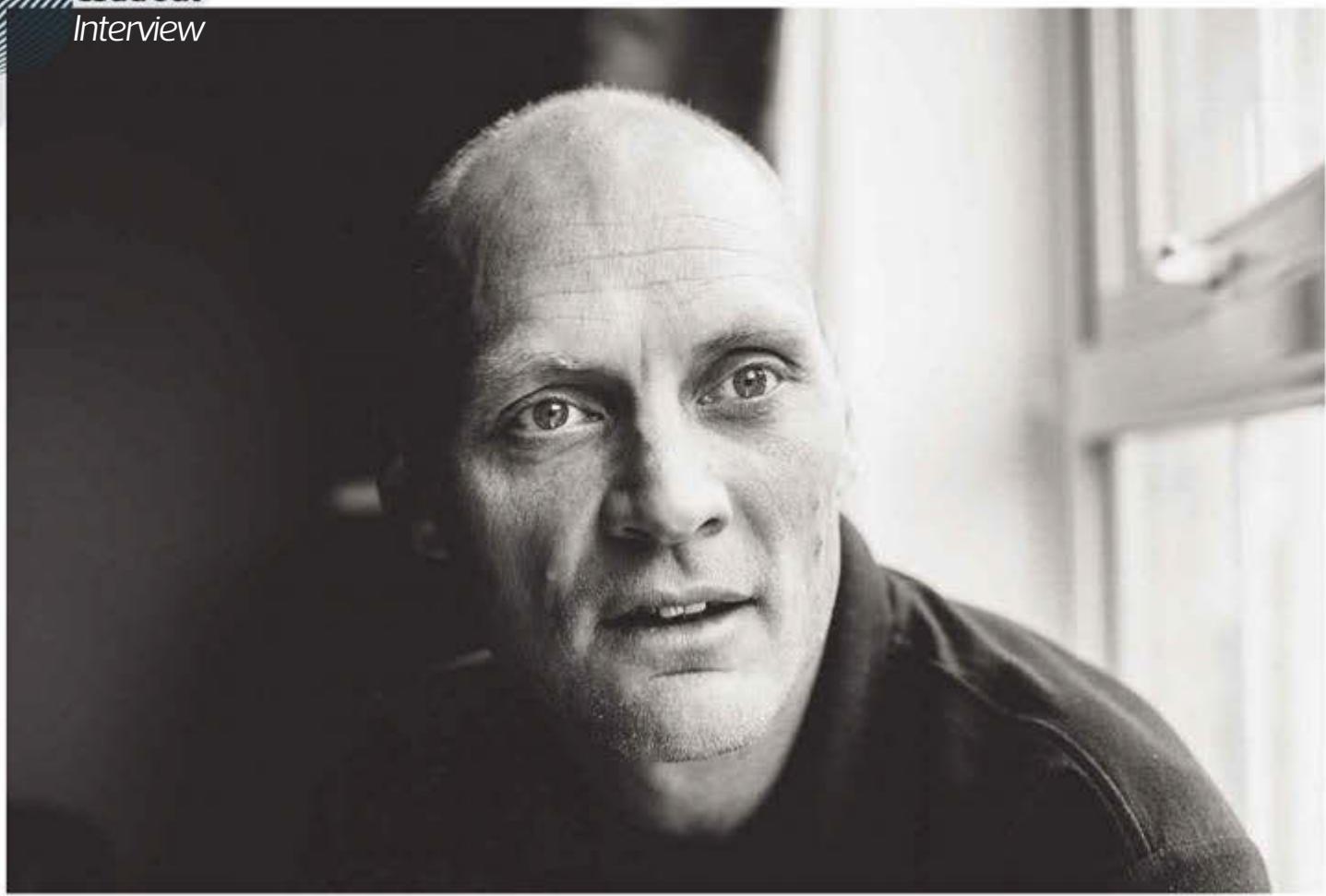
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'Wiggins has the ability to win Paris-Roubaix but he has to find that sweet spot on the cobbles for gear selection, bike position, tyre pressure, what tyre to ride in what conditions...'

© sprint track bronze in 1995 and the British national road championships in 1998. Our two daughters have certainly got good cycling genes. They're massive cyclists, in fact. The oldest is 13 and if I let her ride a bike seven days a week, she would. The younger one's into cyclocross.

Cyc: You retired in 2009 after a season with Slipstream-Chipotle and soon after appeared on the UK circuit. How did that come about?

MB: Nigel Mansell asked if I wanted to do a ride with him for the charity UK Youth, of which he's president. It went well and we came to the conclusion that it'd be great for the charity to set up a team. We raced predominantly on the GB circuit in our inaugural year of 2011 before moving to Continental level in 2012, which helped our entry to the Tour of Britain. However, I left at the end of 2012 and, ultimately, took up Ironman. I'd always admired triathletes. I know many recreational triathletes get stuck

from cyclists because of their bike skills but athletes like Sebastian Kienle [who won Ironman Hawaii in 2014] ride 180km in 4:20hrs. That'd take it out of any professional cyclist.

Cyc: Bradley Wiggins has said he wants to become the first Brit to win Paris-Roubaix. Has he got what it takes?

MB: He has the ability to win it but you have to find that sweet spot on the cobbles in terms of gear selection, how you're set up on the bike, tyre pressure, what tyre to ride in what conditions. And Team Sky must ensure there's only one leader and really look after him. I used to ride the course at least once, often twice, before the event. I took my manager and one or two guys with a truckload of stuff: wheels, tubs, frames, forks, handlebars... and tried for that little bit extra speed. I'm sure Sky will do the same.

Cyc: You showed in Roubaix how adept you were on the track. What

Backstedt's Palmares:
 1998 1st, Tour de France Stage 18
 Tour of Sweden 2nd GC
 2002, 2007 Swedish Road Race Champion
 2003 1st, Swedish Time Trial Championship
 2004 1st, Paris-Roubaix; 2nd Gent-Wevelgem
 2005 4th, Paris-Roubaix

are your thoughts on the recent renaissance of the Hour record?

MB: It's brilliant that it's back in the spotlight, and I think the rules are now set so that the record can keep moving forward without the technology dominating the event. It'll be really good to see Brad have a go, although I'd keep an eye on Jack Bobridge. [In fact Bobridge fell just over 0.5km short at the end of his attempt in January.]

Cyc: Will you be at the track and/or Roubaix as commentator for Eurosport?

MB: To be confirmed. I'm still waiting to hear back from them about the 2015 schedule. It'll need to fit in with Ironman training but I want to continue as it's something I enjoy. It's a good way to stay involved in the sport, though time's precious. I still have Big Maggy's coffee shop in Jersey, and I'm working with Infocrank – a new power meter that's just hit the market [see *Cyclist* issue 32]. I've also started a business importing and distributing a brand called TEC. It's an accessories and parts brand. Basically anything you can hang on to you or your bike, we stock. Even at 40 I want to race faster, and having the best gear certainly helps. ☀

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Gift of the Gabba

More weather-proof than a standard jersey, yet lighter and better fitting than a jacket, the rain jersey is the new must-have, and it's mainly thanks to one brand...

Words JAMES SPENDER

Photography DANNY BIRD

If imitation is the sincerest form of flattery, Castelli should be blushing all the way to the start line. Its Gabba blurs the boundaries between jacket and jersey, being both windproof yet breathable, heavy duty yet lightweight and water resistant yet wicking. It's hard to know whether the Gabba is an outer shell or an inner layer. Either way, it's caught on in a big way since its release in 2013, to the point where no self-respecting manufacturer will be seen without one in its clothing line-up.

'The Gabba was the first garment of its sort on the market,' says Ali Katir of Parentini, which makes the fluoro Mossa jacket pictured here. 'We followed in the Gabba's footsteps, and we believe the Mossa does everything the Gabba sets out to do. It's a rain cape, gilet and medium-season jacket all in one garment.'

It's a bold enough claim, but one that will be repeated for any of the Gabba-esque garments shown here. Quite simply, a Gabba-style jersey is a must have in any cyclist's wardrobe, perfect for dealing with all but the harshest of conditions. Whether or not the original can be beaten is up for debate, but one thing's for sure, Castelli isn't complaining.

'We invented a new category in cycling clothing,' says Castelli's Rich Mardle. 'If other people are emulating that, that's great. After all, it's only a sign of credibility that others should feel the Gabba is a garment they need to have too. That's the biggest form of flattery.'

So there you have it. Whether you plump for the original or another manufacturer's take on it, the Gabba concept is the gift that just keeps on giving.

See p208 for stockists



Leadout
Rain jerseys





FSA Carbon Pro Compact chainset

In days of old, when pros were bold, they rode a 52/42. Until FSA got involved with the Carbon Pro Compact...

Words JAMES SPENDER Photography DANNY BIRD



Here's a scene recounted in Tyler Hamilton's book *The Secret Race* in which Bjarne Riis pedals nonchalantly uphill, past the gassing peloton, 'pushing a gigantic gear'. Of course the implication is that Riis was juiced up to the eyeballs, but nevertheless it says something more about the cyclist's psyche: the need to show strength. This collective bravado was something that quite possibly staved off compact chainsets until as late as 2004.

'To use a big chainring showed your competitors you were very strong,' says FSA's general manager, Claudio Marra. 'Probably this was part of the reason compact chainsets were not used before. That and the fact Shimano

FSA's compact chainset wasn't the first, but it was the one that changed perceptions of the concept, especially within the pro peloton

and Campagnolo had always said 14 teeth was the maximum difference that could exist between chainrings without impairing shifting, not 16 as with a 50/34t compact set-up.'

Not for the first time, then, the progress of cycling technology was being dictated by the professionals and the stalwarts, but FSA engineers remained convinced. They believed there was a place for compact chainsets, despite them initially failing to catch on.

'We didn't invent the compact chainset,' says Marra. 'Amateurs would create their own gearing and Cannondale produced a compact chainset under its component name, Coda, in the early 1990s, but we were the ones to make it popular. We released the Carbon Pro Compact at the 2004 Tour with Team

CSC [latterly Tinkoff-Saxo]. It cost around £330, and within the first year compacts accounted for nearly 80% of our total road chainset sales. Now they are around 90%. This is why we called it the "Compact Revolution".'

In 2004 FSA produced a curious piece of marketing literature that was indeed called *Compact Revolution*. It was part advertising, part white paper, part manifesto. In it, FSA names Hamilton as the man to first 'prove the validity of the compact' after the company supplied him with one when a crash in the 2002 Tour left him with a fractured clavicle. 'Armstrong won the Tour but Hamilton was successful, finishing pedalling from a seated position [thanks to his compact] and was able to take on the difficult mountain stages,' the document said.

For some this would have been compelling enough evidence, but FSA backed it up with a discourse on speed, gear inches and cadence, as well as statements such as 'the heart's capability to work at a greater number of heart cycles, in fact, is that which makes it possible to have greater muscle freshness primarily in the gradient'.

Perhaps mirroring the reader's befuddlement is a note from the copy editor that somehow remains in the *Compact Revolution* pamphlet: 'Sorry but I do not understand this technical section'. Yet, little over 10 years on, most people can appreciate the compact chainset's simple brilliance, even if it took a while for some to be convinced.

'Shimano and Campagnolo were not so happy!' says Marra. 'They had lots of infrastructure invested in double chainsets and triple chainsets, so with compact, they were forced to change their production systems. Of course there are still many double chainsets, but we virtually killed the triple. Like I said, we brought a revolution.'

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What are you made of?

Body fat can be an obsession with cyclists, but how do you measure it, and what is the right amount? *Cyclist* takes the tests to find out

Words **JAMES SPENDER** Photography **GEOFF WAUGH**

Cycling is all about power-to-weight ratio, right? Increase the power, drop the weight and physics says you'll go quicker. Well, it's a bit more complicated than that.

'Who needs to lose weight? Nobody. Fat, maybe. Muscle, if it's not useful for your sport, but not weight per se. That's where body composition analysis comes in, and that's where we can help,' says Phil Chant, director of Bodyscan, a chain of clinics that offers body composition analysis to anyone from professional athletes to taxi drivers.

'So what you're lying on now is a DEXA scanning machine,' Chant adds, as a large grey mechanical arm makes whirring sweeps up and down my semi-naked body. 'DEXA stands for

Dual-energy X-ray absorptiometry, which means it's basically a very mild X-ray scanner. About 5,000 times less radiation than a CT scan in fact, so entirely safe. Right, you can sit up and put your shirt back on now, you're done.'

The whole scan has taken less than five minutes, and before I'm fully dressed Phil is already brandishing a sheaf of papers he's just pulled from the printer, the foremost of which has some interesting looking images of a human body. Or more precisely, my human body.

'DEXA is a three-compartment model,' he adds, pointing to the first image. 'It measures bone, highlighted in blue; fat, the orange; and lean mass, the red areas. So here, for example, we can see your fat around the hips, thighs, waist and across the shoulders. We can see that you are carrying 793g and 808g

Cyclist heads to Bodyscan to be put through a DEXA scanning machine. The whole process takes less than five minutes, so can it really give us an accurate indication of our body fat percentage?

of fat in each arm respectively, 5,089g in your trunk and 2,481g and 2,630g of fat in each leg, so around 11kg in total.'

What that equates to is that I'm officially 16.2% body fat (not including my head). The remainder is 58,419g lean mass (muscle plus organs, tendons, ligaments and connective tissue) and a mere 3,138g for my entire skeleton. Seriously?

'People are often surprised by how light their skeleton is – the average for a man is between 2.5kg and 3.5kg, for a woman 1.5–2.5kg,' says Chant. 'I had one guy tell me I surely must mean 31kg!'

Of course that's for a 'dry' skeleton – if you stripped me bare and weighed my skeleton the water, blood and marrow content would make it heavier – but I'm still blown away by the results, particularly the body fat content. Is too much information a depressing thing, even for the die-hard roadie?

Flatter to deceive

I've never considered myself particularly lean, especially for a cyclist. 



● but I've had my body fat checked on a couple of occasions in the past using skinfold and bio-impedance techniques and I've always believed I was around 12.5%. Again, nothing to write to Dave Brailsford about, but I'd always thought I was doing OK, harbouring that slightly misguided notion that if I took my training and diet more seriously I could achieve top level brilliance. So to find out I'm 16.2% body fat is a bit of a shock. Have I been had? I put this question to British Cycling coach Andy Kirkland.

'Unless you're a skilled practitioner, for example ISAK certified [International Society for the Advancement of Kinanthropometry], skinfold analysis – using callipers to measure the thickness of fat at certain sites around the body – can be next to useless,' says Kirkland. 'So too bio-impedance, typically where you stand on some scales and a small electric current is passed through one foot and out the other; the change in resistance is reflective of body fat as there's different conductivity between lean tissue and fat. But it's susceptible to things like hydration [water retention greatly affects resistance] and uses predictive equations that are based on

'Unless you are a skilled practitioner, then skinfold analysis – using callipers to measure the thickness of fat at certain sites around the body – can be next to useless'

'Mr Average' body types to derive its body fat percentages, which is no good for athletic people like cyclists.

'Hydrostatic weighing – using the Archimedes principle where you displace water in a tank – or DEXA scanning – yield far more accurate body fat percentage results.'

That explains the 4% disparity between what I thought I was and what I really am, but still I'm none the wiser: is 16.2% body fat for a 30-year-old male cyclist with racing aspirations a figure to embrace or one of disgrace?

'At the elite end 4-10% body fat is often considered an ideal range. A track rider might not mind being towards the higher end, but a road racer who tackles hills will want to be as lean as possible,' says Kirkland. 'But within reason – being too lean can have implications on things such as the immune system, and every

person's physiology is different. So for some riders going below, say, 8% body fat can have a negative impact, but then others like Mr Wiggins, for example, can go very, very low for short periods of time for certain events.

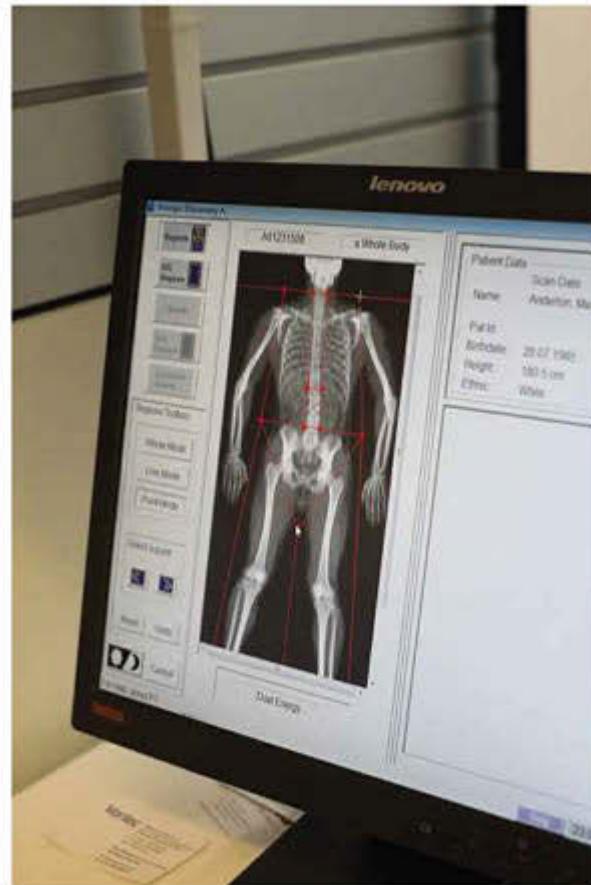
'From a coaching perspective, then, I wouldn't be overly concerned with an accurately measured 16.2% body fat figure. Maybe I would be a bit if you wanted to podium at the national hill climb champs, but for a cat 1-4 racer, between 10-20% body fat for a male is a good average, or adjust that by 4-5% for a female. But I'm at pains to stress these are ranges, not targets. Each individual is different.'

To that end, Kirkland says neither he, nor most coaches, subscribes to a 'this is your ideal body fat percentage, now take steps to hit it', such is the complexity of the human body and the role of fat in it. And besides, the real proof of the pudding is performance on the bike. But he does add that 'if you were over 20% body fat – or 25% for a female – you'd probably stand to lose something, and for periods of not very intense training you're looking to lose no more than 0.8kg in weight per week.'

Fat on the inside

I'm now not feeling so bad – at 16.2% I'm a perfectly normal Mr Average in the grand cycling scheme of things – but there's still one thing that's bothering me: just where is all this fat? I can imagine what 1kg of butter looks like, but I'm struggling to imagine it stuck all over my body.

'We call it TOFI,' says Chant. 'Thin on the outside, fat on the inside. Essentially there are two main types of fat – subcutaneous fat, the inch you can pinch, and internal visceral fat, which does things like surround your organs. I had a guy in a while ago, 23, had the same body shape as you, weighed about the same but when he got the DEXA results he couldn't believe it. He was 30% body fat, so he had relatively high visceral fat. A lot of people delude themselves. For example, your visceral





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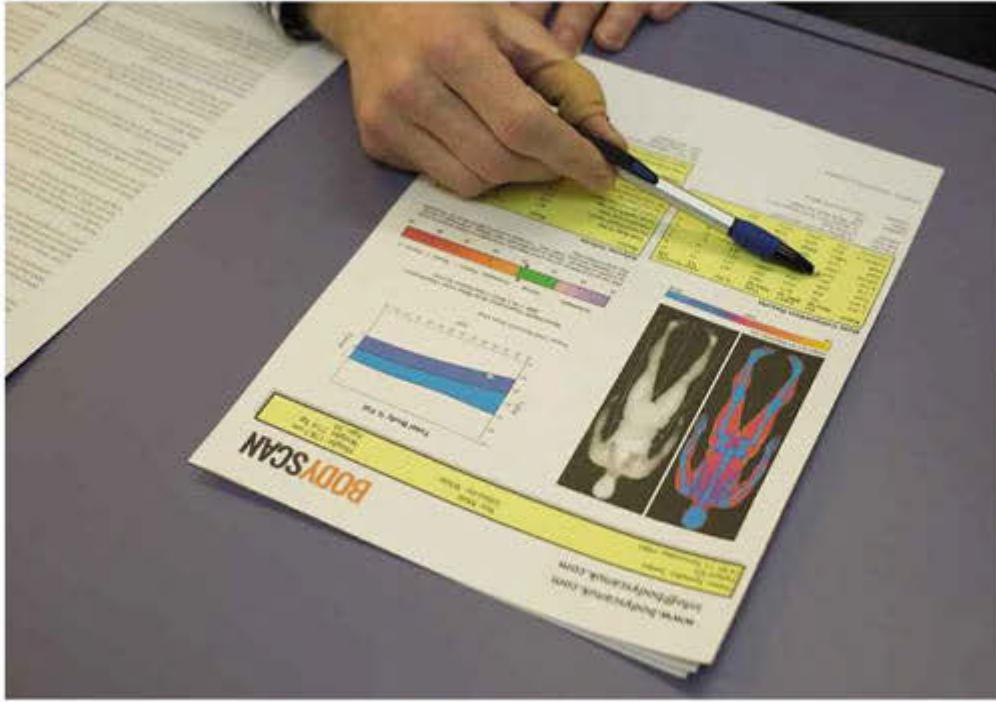
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fat here is 49.2cm squared. Under 100 is healthy, over 160 is high risk, as high visceral fat levels have been linked to things like type 2 diabetes. We had a taxi driver in, and he thought he just needed to lose a few kilos, but it turned out his visceral fat was over 200cm squared.'

Too much visceral fat can be bad, so should we be trying to limit fat all over? 'It needs to be understood in context,' says director of Guru Performance Laurent Bannock. 'If you're a rugby forward then you'll have a substantial amount of muscle mass, but being too lean can increase the risk of injury – a bit of fat can protect you from impact. Sumo wrestlers carry an awful lot of subcutaneous fat, but that's to their advantage, and when we've seen these guys they actually have very low visceral fat, and that's because of training and exercise.'



'Then if you're an endurance cyclist you'll likely want to be as lean as possible, and your muscle should be functional,' he adds. 'But even then, someone who's really ripped to the bone is carrying enough fat stores on them to power through at least five marathons.'

Top: DEXA software can analyse how your weight is distributed and where it comes from: fat, lean mass and bone. But it is most useful when charting changes over time, rather than quoting numbers in isolation

Vitruvian man from the future

Science does Michelangelo, only better

For many years accessing a DEXA scanner meant getting involved in a research programme at a university or forking out tens of thousands of pounds to buy one yourself. But companies such as Bodyscan (bodyscanuk.com) now offer DEXA scans and consultations to the general public. Prices start from £129 for a scan and three-page report. The scans themselves are non-invasive and take just a few minutes, and the results are incredibly in-depth. Bone,

fat and lean mass is measured, and broken down into regions around the body and correlated against the NHANES test group of 20,000 similarly surveyed individuals to give an idea of how your results stack up against the world at large. As yet there aren't readily available control group charts by sport in the UK, but coaches such as Laurent Bannock (guruperformance.com) are on hand to help you interpret DEXA data in relation to your sport and your goals.



'Even someone who's really ripped to the bone is carrying enough fat stores on them to power through at least five marathons'

That's not to say that any one of us could go out and run at least five marathons, but it does rather cement the point, which is that ascertaining fat and determining whether it's useful is a tricky business that goes beyond a mere number. Yet common sense still dictates: 'For elite athletes there's a fine line between 1st and 5th. But on the more recreational side of racing, like sportives, there can be massive differences, and just losing a few kilos can have dramatic impacts on outcomes,' says Bannock. 'But losing weight doesn't tell you whether you're losing fat or lean mass, and to an athlete that's a critical difference.'

'Precisely,' echoes Chant. 'That's where DEXA comes in. We had a guy do a 12-week fitness programme, who got scanned at the start and the end. When he came back in the scales said he'd lost 6.5kg, but then the DEXA scan showed he'd lost 5.5kg of muscle and only a kilo of fat.'

So fat's a bit of a sticky subject. Not all fat percentages are created, stored, or employed equally, and there are no absolute golden figures to aim at. Yet having a DEXA scan or similar might well throw up some useful, objective warning flags – particularly where things like visceral fat are concerned – but for the most part in the sporting realm they exist as yardsticks or diagnostic tools in the broader training spectrum. Just how broad that spectrum is, or indeed how flexible it is, depends entirely on you.

'There's a balance between life and sport,' says Kirkland. 'I remember Wiggins once saying that if you were still a club-level cyclist at such and such an age, eat a pie and mash, and enjoy a beer with it. The implications on your performance won't be huge. In other words, are the lifestyle changes to go from 16% to 8% body fat actually worth it?' *

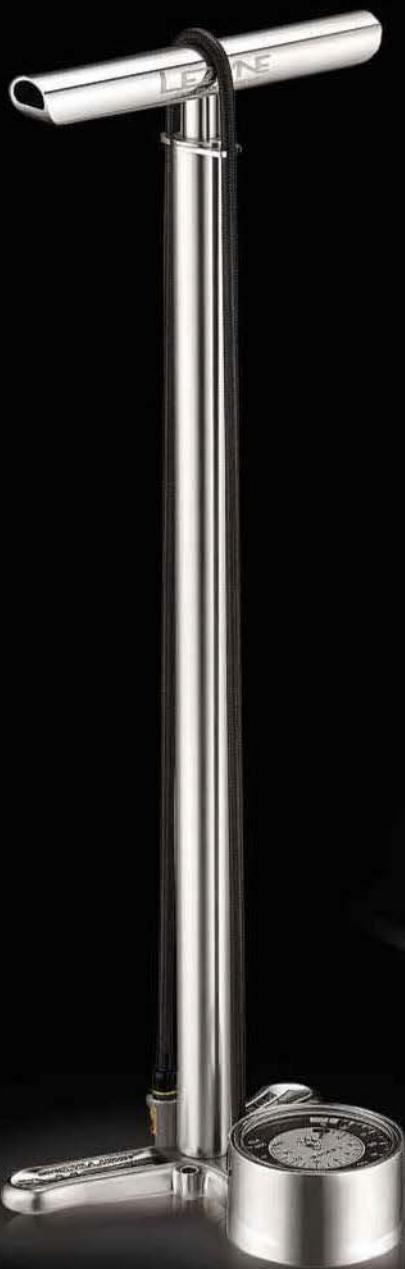


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Sore point

Is it cushioning your backside needs or just something the correct shape? *Cyclist* tackles the age-old problem of finding the right saddle

Words STU BOWERS Photography DANNY BIRD



The growing popularity of cycling means the sport is seeing a lot more bums on seats. And if all those riders want to enjoy the experience, we'd bet our bottom dollar (sorry, couldn't resist) that finding a comfortable saddle is a priority. But what is it that makes a saddle feel more comfortable, and how can you be sure the one you've just plucked off the shelf will look after your nether regions any better than the last?

Many saddle brands now have some form of fitting system to guide you through the minefield of choosing an appropriate saddle. Prologo has its MyOwn system, Selle Italia has its IDmatch, and the list goes on, but while they each take a slightly different approach, essentially what they all do is to take some simple body measurements to glean a few important details about your body. Usually of primary concern are establishing sit bone width, degrees of flexibility and/or pelvic rotation and preferred riding style. With these key determinants established, recommendations can then be made as to what saddle will suit the individual best.

This ultimately comes down to two choices, regardless of brand: width and profile. Most brands now offer three profiles of saddle: flat, curved, and somewhere in between, and different brands may represent this in their own way, for example Fizik labels its range Snake, Chameleon and Bull.

If it sounds complicated, then don't be put off. 'There's a huge amount of marketing fluff – and you can quote me on that,' says Nick Larsen, designer and owner of Fabric saddles. 'I think more than anything, people seem to like to make the problem more complex than it needs to be. Overall there hasn't been a huge amount of development in saddle shapes and designs for decades.'

'What's most important is shape relative to your riding position. As your riding position changes so does your weight distribution'

Much of that is being restricted by how saddles are traditionally made.'

So let's start by unravelling some of the myths and establishing some pertinent truths about saddle design.

Yours truly

The one thing every saddle designer we spoke to agrees on is that saddle choice is very much down to the individual. Buying a saddle simply because it's the latest model or because it has been given a good review is foolhardy. Everyone is different and there's myriad variables that can determine what works for you. One thing is for certain – pressing your thumbs into a saddle in the bike shop is like kicking the tyres on a used car. It will tell you little or nothing at all about how suitable it might be.

Salvatore Truglio is Prologo's team liaison, so well aware of the feedback riders provide for various saddle designs. In his experience, he says, 'Shape always wins over padding, but we must always pay attention to the needs of the individual. The position of the rider is the most important factor, as from recreational level through to pro level everything changes.'

'It's all about shape, not padding,' agrees Larsen. 'Padding might help in certain circumstances, but what's most important is shape relative to your riding position. As your riding position changes so does your weight distribution. As a generalisation, the more upright your position the more radius [curvature of the saddle] you need to support your sit bones and retain a stable seating position, and the more low and stretched out your position, the more you will benefit from a flatter saddle profile. Knowing how you ride will be of more use when picking a saddle compared to, say, just focusing on sit bone width. This has some importance, but it's easy to cater for and also from our studies we've found there's a



FLAT PROFILE
Top: Fizik Arione, from £104.99, extranet.co.uk



SHALLOW PROFILE
Centre: Fabric ALM Ultimate, from £225, fabric.cc



CURVED PROFILE
Bottom: Genetic Monocoque Carbon, £99.99, ison-distribution.com

► definite bell curve, where 90% of the population lies. There really aren't all that many outliers, it seems.'

Selle Italia product director Piet van der Velde seems to initially contradict Larsen's views: 'The priority is to be measured first to determine the width of the saddle that your body needs in order to support it on the bike.' But he goes on to say, 'It's your flexibility that determines the saddle shape that you need in order to achieve the best performance from yourself and in terms of biomechanical fit. Taking this into account, the shape comes before the padding. This is probably determining 80% of your comfort level. The padding is a matter of personal

'I don't think many people fully appreciate what a truly comfortable saddle feels like. You shouldn't even be aware that it's there'

need in terms of differences of soft tissue or simply the distance you ride.'

Rule #5

The old school would have you believe the soft tissue that van der Velde refers to is something that needs to be trained, just like your legs. But is hardening up to pain and discomfort truly an answer? Thankfully, no seems to be the consensus. Rule #5 need not apply here. Larsen suggests quite the opposite, saying, 'I don't think many people fully appreciate what a truly comfortable saddle feels like. You shouldn't even be aware that it's there. But most people just persevere and "get used to" a saddle that is not really comfortable at all.'

Prologo's Salvatore Truglio goes further, saying, 'What some people don't realise is that tissue eventually gets destroyed by the pressure exerted by the saddle, and that is often why a saddle may eventually feel more comfortable over time if you persist.'

Selle Italia's van de Velde adds, 'Thicker, softer foams and gel don't

offer much support in terms of position and can actually cause compression of arteries and nerves, leading to further discomfort.'

The message is clearly not to be fooled by a cushy-looking cover and focus on being properly supported. Of course, there are more parts to a saddle than its cover. 'We find that so much of the comfort comes from the rails,' says Larsen. 'If the rails have some flex the saddle will automatically feel more forgiving. It's why you can still achieve comfort with no padding at all.'

Despite being new to the market, Astute (see p22) has the benefit of being in a region of northern Italy where over 50% of worldwide saddle production

takes place, so it has a very experienced workforce. Brand manager Andrea Rizzato says, 'Anti-vibration is very important for comfort. We use a shock absorber in the rail plus three densities of memory foam padding developed from Aston Martin sports car seats, but the nose is most important for us. It's where people feel the comfort of the saddle most. But shape and padding must work together as a system.'

Rizzato concludes, 'The most important point though is that you recognise your own ability. This will help make a good choice.' He suggests that riding position above all else determines pelvic tilt and the knock-on effect on the distribution of pressure between sit bones and soft tissues.

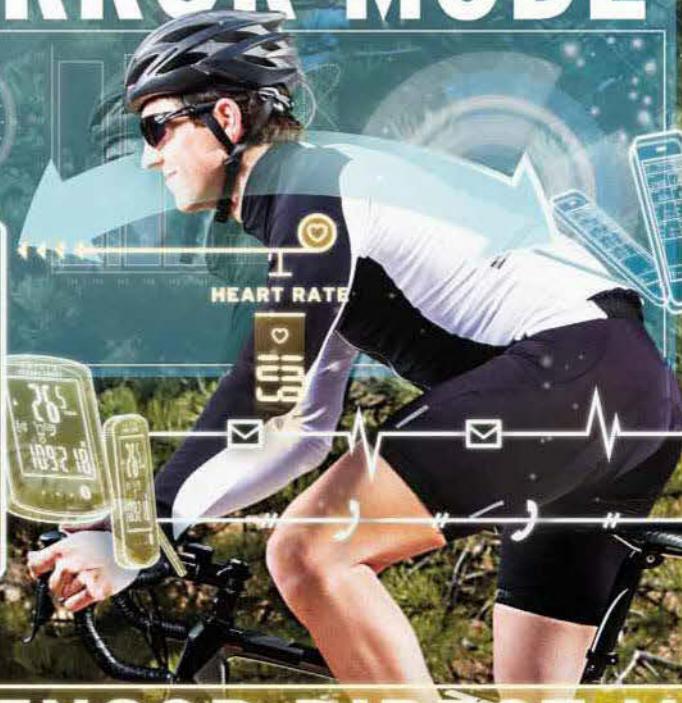
The best advice: resist the temptation to squish it with your thumbs, get measured, and then get your backside on one of the many 'try before you buy' versions (practically all saddle brands offer this facility), for at least a few rides on your regular routes. Then you can listen to your body, not the latest marketing campaign.❶

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fig. XXVIII. STRADA SMART

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Why do I get speed wobble?

The reason why your front wheel starts to wobble violently at certain speeds has perplexed experts for years. *Cyclist* examines the science...

Words JAMES WITTS and STEVE WESTLAKE
Illustrations ROB MILTON



You've crested Alpe d'Huez. You shift into the big ring, adopt the aero position and down you go – 40, 50, 60, 70kmh. Exhilaration here you come. But damn – your handlebars are shaking all over the place. Panic-stricken, you wish you were anywhere else but here. Even playing golf!

Anyone who's ridden for a number of years has probably experienced the phenomenon known as speed wobble or high speed shimmy. It's a rare event, but when it strikes it can be terrifying for the unsuspecting. So is it down to bad luck, bad technique, a particular bike, a particular set-up – or can science explain it?

One of the world's leading experts on bicycle dynamics is Oldham-born Jim Papadopoulos from Northeastern University's College of Engineering in Boston, USA. He is the co-author of *Bicycling Science* and has penned several academic papers on bike theory, including one in 2013 on the very subject of high-speed bicycle shimmy. If anyone is in a position to unravel the mysteries of speed wobble for us, it's him... except, by his own admission, it's not that simple.

'Unfortunately the science of bicycles is still very primitive, so that we often don't know how to ask and answer meaningful questions,' he tells us. In his view, shimmy has been hard to understand because it depends on criteria that until now no one has thought to measure. His paper is the first such record of bicycle shimmy data ever to be published.

'Shimmy may be identified as a 3-10Hz steering oscillation of the bicycle steering assembly, namely the front fork with the wheel and handlebar. As the front contact describes a sinusoidal path, the steering bearings connecting the front fork to the rear frame displace both laterally and in roll.'

Put simply, the bike wobbles fast, pivoting about the head tube, with the front wheel steering left and right from 3 to 10 times per second. We do know something about the causes too. 'High speed brings it on, and low

torsional stiffness [of the bike] when the wheels are included appears to be a culprit,' says Papadopoulos.

Swings and roundabouts

Damian Harty is senior staff engineer in vehicle and systems dynamics at Polaris Industries. He expands on the subject: 'Any oscillatory phenomenon hinges on the exchange of energy between two or more forms,' he says. 'For a pendulum, it is the potential energy – height above the ground – and kinetic energy – mass in motion. For front end shimmy on a bicycle, it is kinetic energy and a form of potential energy from the angle of the tyre, made by the steering. Tyres make forces due to the angles at which they operate – a bolt-upright, dead ahead tyre makes no lateral forces. The tyre swings around the steer axis to give an angle.'

'Another form of energy involved in this phenomenon is strain energy, which is stored in stretching or bending things. The frame tubes on a bike are like an elastic band and they store energy, releasing it back into the system at the right time to prolong or amplify the motion. Stiffer tubes deflect less,' Harty adds.

While these oscillations can be suppressed with damping, for instance by reducing a rider's weight on the saddle, or by holding the handlebars more gently, bike stiffness is a key requirement if you want to stop shimmy. ☐

Jason Rourke of Rourke Bicycles agrees. Rourke designed and built the bike used by Guy Martin in his speed project where he reached 180kmh on Pendine Sands. A framebuilder for over 20 years, his main concern was speed wobble, so Martin's Rourke was as stiff as a board. 'Mind you, we were more worried about the wheels,' he says, 'so we went as strong as we could. No lightweight spokes and we used Hope hubs. Guy didn't have one wobble.'

But there's still the factor of unpredictability. 'One thing that mystifies people is that sometimes it happens and sometimes it doesn't,' says Harty. 'It's always there but in a latent way. It just needs something to trigger it off and we're still not 100% sure what that is.'

Testing times

In his recent experiments, Papadopoulos and a team led by Gianantonio Magnani from the Politecnico di Milano used a Colnago C59 size 52S with Fulcrum Racing Zero wheels, Campagnolo Super Record components and an SMP Light 209 saddle, making a total weight of 7kg. An accelerometer was fitted to the stem to measure fore/aft, lateral and vertical

movements, as well as roll, pitch and yaw, recording all this at 100 samples per second. On a downhill section, severe shimmy at a frequency of 7.7Hz started at just over 60kmh and lasted for about 15 seconds by which time the speed had reduced to 35kmh due to the road flattening out. When a second rider who was 10kg heavier rode on the same stretch of downhill, they reached speeds of 73kmh with no shimmy at all. 'This proves that producing shimmy is not solely the property of the bicycle but depends also on the rider, including perhaps the riding technique,' says Papadopoulos.

The experiments also included variations in other components including tyre construction, tyre pressure, wheel stiffness, saddle stiffness, fork stiffness and stem length. 'The general conclusion from these tests was that all these parts can affect the shimmy onset speed to some extent, but none of them really change the bicycle-rider tendency to oscillate at a frequency around 7.7Hz,' adds Papadopoulos.

What determines this vibration speed has long been a point of contention. 'Many people have identified the shimmy frequency with wheel rotational frequency,' says

Papadopoulos. 'I don't accept this at all, nor any suggestion that loose or tight headset bearings, or wheel trueness, could be responsible. Shimmy frequency is an elastic property of the bike. Evidently, if the bicycle is "soft" enough (ie elastic enough) torsionally, and if the rider is firmly seated which minimises damping, shimmy will often appear. Probably a torsionally stiffer bike will reduce or eliminate the problem (this might include stiffer wheels), and evidently a somewhat lighter "grip" of the bottom on the saddle, or of hands on handlebar, will make the oscillation disappear.'

And so we come to what a rider can do to counteract shimmy before it gets out of control and potentially causes a crash.

'Rising a little out of the saddle, or gripping the frame with your knees with a gentle grip on the handlebars can stop the oscillation within a couple of cycles,' adds Papadopoulos.

And it is possible to practise in a safe environment, something that Papadopoulos recommends. Controllable shimmy can be started deliberately at slower speeds – say from 20kmh upwards – by hitting the head tube sideways with hands off the handlebars. 'At low speed you can feel quite comfortable riding no-hands with the low-amplitude vibration, and learn how to "turn it up" or "turn it down" by weight shift, or by touching the handlebars. Practice makes perfect.' *

'Our experiment proves that producing shimmy is not solely the property of the bicycle but depends also on the rider, including perhaps the riding technique'



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GERMAIN BURTON AND CHRIS LATHAM
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Ooey Custom Paint's owner, Stuart Harris, in his spray booth. The frame and component painting fixtures have been custom made

Paint shop pros

As the old adage goes, if you can't go fast, look shiny, and there are fewer people capable of creating such a high lustre as the guys at Ooey Custom Paint. Introducing the kings of colour...

Words JAMES SPENDER Photography GEORGE MARSHALL



Stuart Harris has been cutting holes in his roof. It might not seem like normal behaviour for the owner and paint master

at Ooey Custom Paint in Camberley, Surrey, but he wanted some new vents.

Harris's approach to his work, which extends to his workshop, is incredibly hands on. From the homemade wooden staircase that leads to the office, to the litter of radio-controlled aeroplanes that clutter its sides, everything that goes on inside the Ooey premises is decidedly custom. Especially the painting.

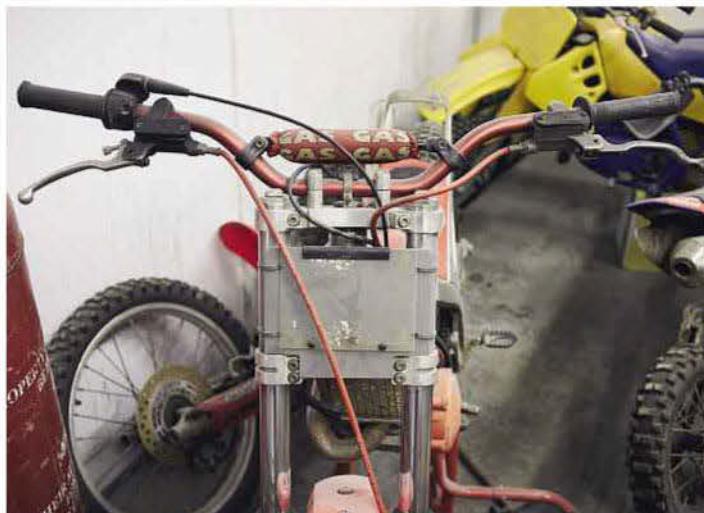
'We paint everything by hand here,' Harris says. 'I started years back custom painting motorcycles, but since I set up Ooey two and a half years ago, customer demand has shifted to bicycles. But not just the frames. We do all kinds – stems, wheels, helmets... you name it, likelihood is we'll paint it.'

As if on cue, Harris's assistant, Jack, passes him a carbon Miche crank arm that's just about to have the tiny accents and logos turned from the factory red to bespoke green.

'First we'll flat it off [sand it back], then mask over the logos, then cut around them by hand with a scalpel. Then we'll spray them back in green and lacquer it. The finished crankset will look identical to the original, except for the green bits,' says Harris.

It sounds like a painstaking job and a lot of effort to go to for some minuscule flashes of colour, but Harris seems cheerful at the prospect: 'The guy's bike is green and he wants the components to match. It will really look cool, but so often beyond that it's a mind thing. We had this Wilier frame in that a girl was racing on, but she wasn't doing well and she blamed the bike. She said she hated it. Then we painted it for her and she





‘I loved it and went on to win her next two races. That’s what a custom paint job or a respray can do for people. They feel like they’ve got a whole new bike.’

How much does a ‘whole new bike’ cost in the world of custom paint? Ooey Custom prices jobs based on the time and materials involved, but as a ballpark figure, a full one-colour respray for a frame and fork is around £280, with the majority of custom frames with multiple colours and graphics costing around £380. Details such as repainting a crankset start from around £65, and custom helmets from around £75.

‘Most customers are fine with the price, especially when they see examples of our work, but some people think we’re expensive,’ Harris says. ‘But when we can make your £4,000 bike look brand new – and unique – for a tenth of that price then I reckon it’s a good deal. That’s our aim, to give you a new bike for a fraction of the cost.’





'We had a frame in that a girl was racing on, but she wasn't doing well and blamed the bike. Then we painted it for her and she loved it and went on to win her next two races'

It seems to be a vision shared by Ooey Custom's customers. The walls are adorned with everything from a perfectly decent 2013 S-Works Tarmac, whose owner 'just likes the look of the 2015 paint scheme better' to a vintage steel Colnago ready for a complete original-replica respray in the 'correct Saronni red, not this Ferrari red'.

'Wherever we can, we paint, and that includes the logos,' adds Harris. 'So with these Colnago logos, we'll photograph them, send that to the computer, trace around them, then cut the masks out on our CNC vinyl cutter. If it's something like this Columbus tubing sticker here, though, which would be too small to paint, we can make up water decals, like the kind you used to get on Airfix kits, and lacquer them in. Or a lot of the

The Ooey Custom team can provide any colour combination – simple or wacky – that the customer asks for

time you can source originals from the internet.' In other words, Ooey Custom can recreate pretty much anything you like on your bike, even people.

'We had a charity bike that we put lots of faces all over, and one where the bloke's dad had died so he wanted his dad's picture on his frame. Some people just want matt black with white lettering, but then there are others like that Wyndy Milla Beastie Boy you guys had in (see issue 7) that had the half Union Jack, half Italian flag paint scheme. We've done a few that weren't really my cup of tea,' adds Harris.

What are you like?

Ooey Custom will paint all frame types, although the majority of its work is concentrated around carbon fibre.

Which might sound like a risky business – carbon doesn't take too kindly to being mishandled – but as Harris points out, years of practice ensure a trustworthy result. In fact, on the day *Cyclist* visits the workshop, Ooey Custom has just finished the last of 25 brand new Specialized Tarmac framesets for Tour Series contenders Pedal Heaven.

The frames came in factory painted, so each one had to be flattened off (that is, sanded back to within a micron – but no more – of its carbon fibre life) before being primed, etched (an anti-corrosion treatment for any aluminium hardware), masked, sprayed and lacquered. The results are completely flawless, with nothing to separate the resprayed frames from the originals, except the green Specialized logos. □



For those who don't want to keep to the original aesthetic of a frame, the world is still very much their oyster. Working with a graphic designer, Ooey can bring to life whatever you can imagine

‘We lacquer everything twice,’ says Harris. ‘So after it’s been sprayed in the spray booth and dried, it goes in the oven at 60°C with a coat of lacquer, before being taken out. Then we do any retouches necessary – maybe there’s a finger smudge or a nib [an errant bit of dust in the paint] that needs sorting – before lacquering it again. That ensures a durable and lustrous finish.’

For those who don’t want to keep to the original aesthetic of a frame, however, or aren’t entirely on board with having faces or international flag mash-ups all over their bike, the world is still very much their oyster. Together with its vast portfolio of ideas, Ooey Custom works alongside graphic designer Mike Watkins (mikewatkinsdesign.co.uk) to bring to life whatever you can imagine.

‘Mike will charge around £45 for a mock-up, and you can change it a couple

of times – he’ll work with you. Then when it’s agreed we get the artwork and start painting.’ Likewise, customers don’t need to have their whole frame resprayed either. Ooey Custom offers a touch-up service, where blemished parts of a frame can be stripped back, colour matched and repainted.

‘You don’t always have to have the whole thing repainted,’ says Harris as he reaches for the phone now ringing on the workbench. ‘Hang on a sec.’ He disappears into the back of the workshop for a while, leaving Cyclist alone to marvel at a zebra-striped time-trial bike. ‘Sorry about that,’ he says returning. ‘That was someone who wants us to repaint a US Postal Service Trek from 2002. Like I said, there’s pretty much nothing we can’t paint.’

For further information, contact Stu Harris on 01276 423088 or see ooeycustompaint.com



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Perfect shot

It's the favourite pick-me-up for pro riders and amateurs alike, but how much coffee should you drink, and when's the ideal time for a hit?

Words MICHAEL DONLEVY
Photography DANNY BIRD



It was Mark Twain who said, 'Golf is a good walk spoiled.' And although you might not agree that 'cycling is a good coffee stop spoiled', that little brown bean is so beloved of many riders that you can see where we're coming from.

'Coffee is endemic in the culture of cycling,' says Nigel Mitchell, head of nutrition at Team Sky. But the good news is that, unlike cakes, pastries and full English breakfasts, it's a treat that won't negate all your hard work in the saddle. In fact, coffee is going to help it.

'In nutritional terms, it's popular because it's a great source of caffeine, which has multiple benefits,' Mitchell says. 'It helps mobilise fatty acids, has a direct effect on the central nervous system and it helps release calcium, which aids muscle contraction.'

Nutritionist Sarah Schenker says, 'Fatty acids in the bloodstream give you fuel at high intensity because they increase fat oxidation and spare the

muscle glycogen that would otherwise be used for energy. Caffeine also boosts concentration levels and lessens your perception of effort. It won't make you fitter, but up a big hill it can diminish the feeling of effort.'

Caffeine gives you a mental boost by blocking the body's uptake of adenosine, a chemical present in the central nervous system that, the longer you're awake, causes tiredness. Technically, caffeine is classed as the world's most popular psychoactive drug. That doesn't mean your saddle will turn into a marshmallow and your handlebars into snakes if you have too much of it – although it is possible to take on too much.

One cup or two?

'There's a lot of mixed information on caffeine,' says Mayur Ranchordas, senior lecturer in sport and exercise nutrition and physiology at Sheffield Hallam University. 'The problem today is that there are so many variables in

health. Coffee is fantastic, but many cyclists do over-consume it.'

The diuretic effect of caffeine (its tendency to promote the production of urine) is widely known. There are different kinds of diuretic however, and caffeine is a type known as xanthine, which inhibits the absorption of sodium and interferes with hormones that regulate urine production by the kidneys.

'Caffeine can decrease the time water takes to leave the body,' says Schenker, but this is not necessarily a problem if you cycle a lot. 'The need to urinate is diminished when you exercise because adrenaline turns down the signals to your bladder, but you may find that you need the loo if you don't time it right. As with any type of sports nutrition, you have to experiment to see what works for you.'

'Studies have shown that standard coffee contains enough fluid – water and/or milk – to negate the diuretic effect,' says Ranchordas. 'But that can change if the fluid content is lower. If



‘If you have too many espressos it could have a diuretic effect.’ Essentially, it comes down to the volume of fluid.

‘If you’re having a large and relatively weak coffee, you’re balancing the fluid lost because of the caffeine by taking on more fluid,’ says sports nutritionist Drew Price. ‘What you leave behind the tree doesn’t necessarily tell you about your hydration levels. Compare a two-shot Americano with a double espresso. Having the espressos might not actually make you pee more but when you do you’ll be more dehydrated as you’ll not benefit from the extra water in the Americano. Caffeine isn’t as diuretic as originally thought, because in earlier research they often didn’t take into account the amount of fluid in the coffee. Taking on board plain water will cause you to pee.’

As Schenker says, there’s a degree of trial and error, but there’s another good reason not to have too much of it. ‘Athletes adapt to caffeine,’ says Ranchordas. ‘The more you have, the less the benefit. One way round that is to stop having it four or five days before a race, then reintroduce it on race day. You’ll get a greater benefit when you need it.’

‘My advice is to save it for when you need it,’ Price says. ‘A cup or two a day is fine and probably of benefit health-wise. Performance-wise 6-9mg

‘Have coffee 45 minutes before if the event is short, but if you’re about to start a long, six-hour race have it closer to the start. You want to be sharp for as long as possible’

caffeine per kilogram of bodyweight is best for most of us but after that problems can start. Too much caffeine can cause loss of coordination and concentration, the shakes and heart palpitations.’ None of which are ideal when negotiating traffic or other riders.

Hitting the spot

There are, of course, many different types of coffee, which all have a different concentration of caffeine. ‘If you’re going for a leisurely ride it doesn’t really matter what coffee you have,’ says Schenker. ‘But if you’re about to start a race or hard session it’s worth having espresso for the concentrated caffeine.’

That’s not the only option though. Precise amounts can vary hugely depending on the bean and the barista, but a double espresso averages around 120mg of caffeine. A standard Americano is roughly the same but has more fluid. ‘Instant coffee contains around 30-50mg per cup,’ Price adds, ‘which makes it less beneficial once you’re on the bike.’

‘Pre-ride, you want to boost your plasma caffeine levels around 30-45

minutes before you start,’ says Ranchordas. Plasma caffeine is, quite simply, a way of measuring how much your body has absorbed. ‘Have coffee 45 minutes before if the event is short, but if you’re about to start a long, six-hour race have it closer to the start. You never know when a breakaway might form and you’ll want to be as sharp as possible for as long as possible. 300mg of caffeine – around two and a half double espressos – stays in your blood for between 90 minutes and two hours.’

Caffeine, incidentally, doesn’t just come in coffee and can be taken on board when you’re riding in the form of tabs such as Block Head, which contain a mix of vitamins, mint and caffeine in gum form, which makes for fast absorption. ‘Halfway through a two-hour ride it’s worth having a caffeine boost,’ says Schenker. ‘Also, sports drinks are starting to include caffeine in them for this reason.’

Yet cyclists don’t just want caffeine. We drink coffee because it tastes good and it’s part of the culture of our sport. As Team Sky’s Mitchell says, ‘If we tried to get rid of it there would be a riot.’ ♦

The body becomes acclimatised to caffeine intake, so if you’re after performance gains, save it for race day



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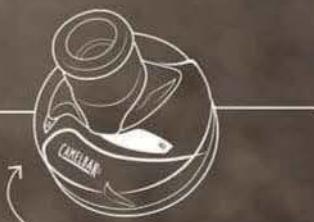
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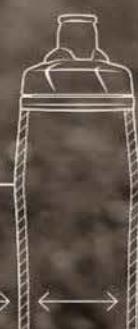
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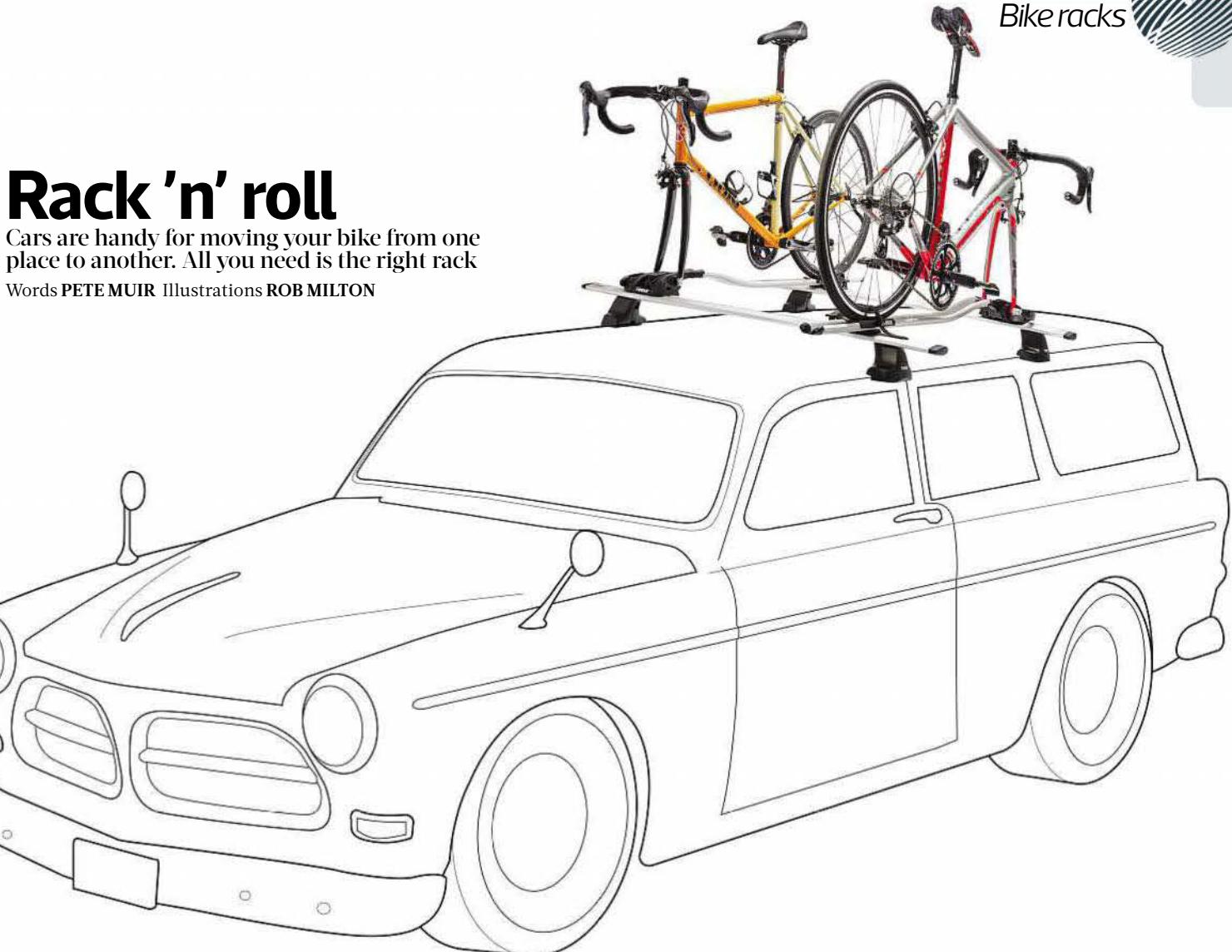
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Rack 'n' roll

Cars are handy for moving your bike from one place to another. All you need is the right rack

Words PETE MUIR Illustrations ROB MILTON



Cone of the beauties of cycling is that you can walk out of your front door, get on your bike and go for a ride any time you like. But there comes a time when you want to explore further afield and visit the truly spectacular venues that the world has to offer (by our estimations, *Cyclist* has presented almost 100 great rides around Britain, Europe and beyond since our launch in 2012). That means finding the best way to transport your bike by car.

'Your main options are tow bar, roof or strap-on mounting,' says Martin Robson, technical manager of Pendle Engineering, maker of bike racks. 'Tow bars are simple and solid, but they are usually the most expensive. Roof racks are almost as simple as tow bar mounting, but they create more drag, so they're worse for fuel economy and you need to remember they are there when

going through height restrictions like car park entries. Strap on racks – the kind that attach to the rear boot – are usually the cheapest option, but they fit onto the car's window and/or paintwork so there is risk of damage if not fitted correctly. Also modern cars are becoming increasingly less suitable for fitting as the shapes have become more complex – the curved surfaces and edges can make fitting the straps quite hard.'

Before making a selection, the main things to consider are the number of bikes you want to transport, the type of bike, and the safety of the fitting.

'We do a lot of testing on our racks,' says Eric Norling, manager product management at Swedish bike rack manufacturer Thule, 'and there is no real difference from a safety perspective for personal injuries or damage to the bike between our models.'

'The easiest product is the tow bar carrier. You avoid the high lifting that you

Roof racks don't have to be moved all the time like ones on the rear, but they are not good for the car's fuel efficiency. Pictured: Thule 561 Outride Fork Mount Cycle Carrier, £104.99, madison.co.uk

have on a roof carrier, and if you have more than one bike it becomes much easier because you can have up to four bikes on a tow bar carrier whereas if you use a roof rack you would need to buy four separate carriers, and reaching positions two and three in the middle becomes a real pain in the...'

So, tow bar it is, then? 'Actually, I usually drive with a roof rack just because I think it looks cooler,' adds Norling. 'Cyclists aren't always rational. It also means I can leave my rack on all the time; it's ready whenever I need it.'

Roof racks are the largest part of Thule's bike rack business and within this sector there are two main options: front wheel on or front wheel off.

'There is no real benefit difference between a stand up carrier [wheel on] or fork mount carrier [wheel off]. I think sometimes people go for fork mount because it looks cooler – a bit more pro. I would say it's more of a hassle to go

'If you have it on the roof you can have a 10% increase in fuel consumption, while if you have it on the tow bar it's below 5%. That could make quite a difference to your wallet'

© for a fork mount because you need to take off the front wheel and store that somewhere. With a stand up carrier you can remove the bike and be off riding quicker. The difference comes if you have a carbon bike as opposed to an aluminium bike, because the bike is more sensitive to external force. We never recommend you clamp anything onto a carbon tube,' says Norling.

With a stand up rack, the bike is usually held in place by a clamp that is secured to the down tube, but it's easy to over-tighten the clamp and then damage the fragile carbon.

'That's why we only do a fork mount type of roof rack,' says Robson, 'because we found it was the best way we could ensure a solid fit. Clamping the frame would require a lot more flexibility to accommodate different shapes and sizes of tube.'

Norling points out that even fork mount carriers can do damage to carbon frames if the dropout attachments are

done up too tight: 'This is the reason we are now launching the Thule Sprint, where we have a fork mount carrier that has a torque limiter function that only tightens to 4.5Nm, at which point it starts clicking.'

There is a way of circumventing the problem of tube-cracking clamps. 'I put a bike frame adaptor between the seatpost and the handlebar,' says Norling, 'and then I clamp the claw to that instead of the frame. It's basically a metal tube with two hooks at the ends. It becomes like a second top tube and it means that you are not clamping onto anything sensitive.'

Another consideration with mounting bikes to cars is the additional fuel cost that comes from the extra drag.

'One of the biggest differences is down to fuel consumption depending on where you mount the bike,' says Norling. 'We did tests recently, and if you have it on the roof, our study showed that you can have a 10% increase in fuel

consumption, while if you have it on the tow bar it's below 5%.'

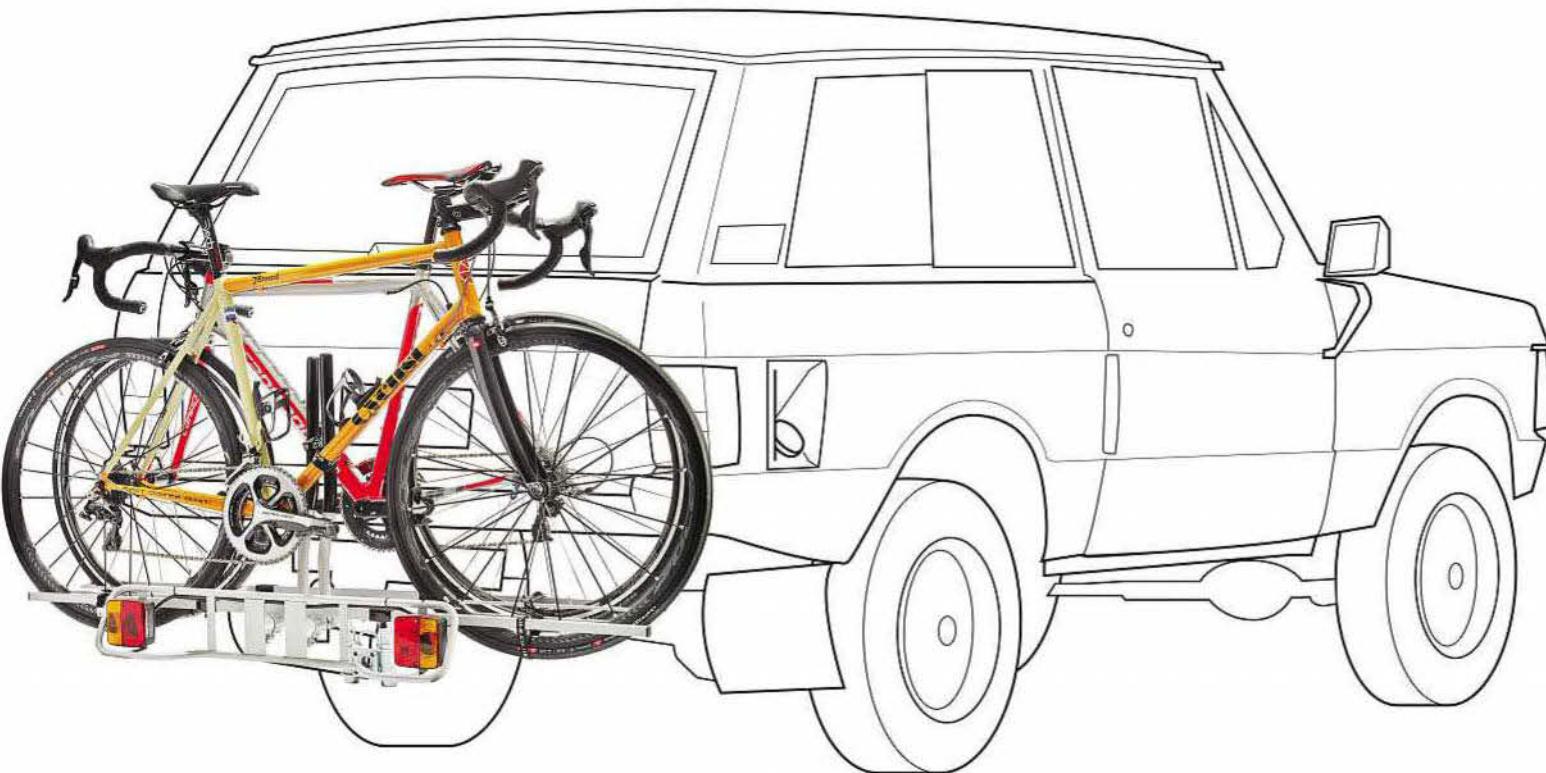
That could make quite a difference to your wallet if you're driving across Europe, and the figure will increase the faster you go, but at least you should be confident that the bike will stay in place no matter how aggressively you put your foot to the floor.

'We recommend that you follow the national speed guidelines or a maximum of 130kmh [80mph],' says Norling. 'But we also know that one of our biggest markets is Germany, and they don't stop at 130kmh. It's not as if you drive at 135kmh the rack will fall off.'

And finally, does it make a difference if you mount the bikes frontwards or rearwards on the roof?

Norling says, 'If you have four bikes on top of your car it's so much easier if you mount them front and back next to each other so that the handlebars don't rattle together. For me, I usually only have one bike and I go with rearwards because it reduces the number of bugs that squash on the handlebars and saddle. It's a small thing, but I'd rather have the flies on the underside of my saddle than where I'm going to sit.' *

Racks on the rear are best for carrying a number of bikes and offer a considerable saving in fuel costs.
Pictured: Pendle Standard Wheel Support Rack, £211, pendle-bike.co.uk



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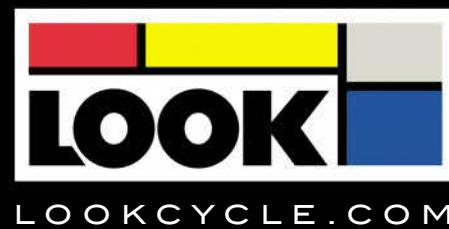


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Strade Bianche

In the first of a new series on upcoming races, *Cyclist* looks at an Italian classic-in-the-making

Words ELLIS BACON Photography JERED GRUBER

The details

When Saturday 7th March 2015

Route 200km from San Gimignano to Siena, Italy

First held 2007

2014 winner

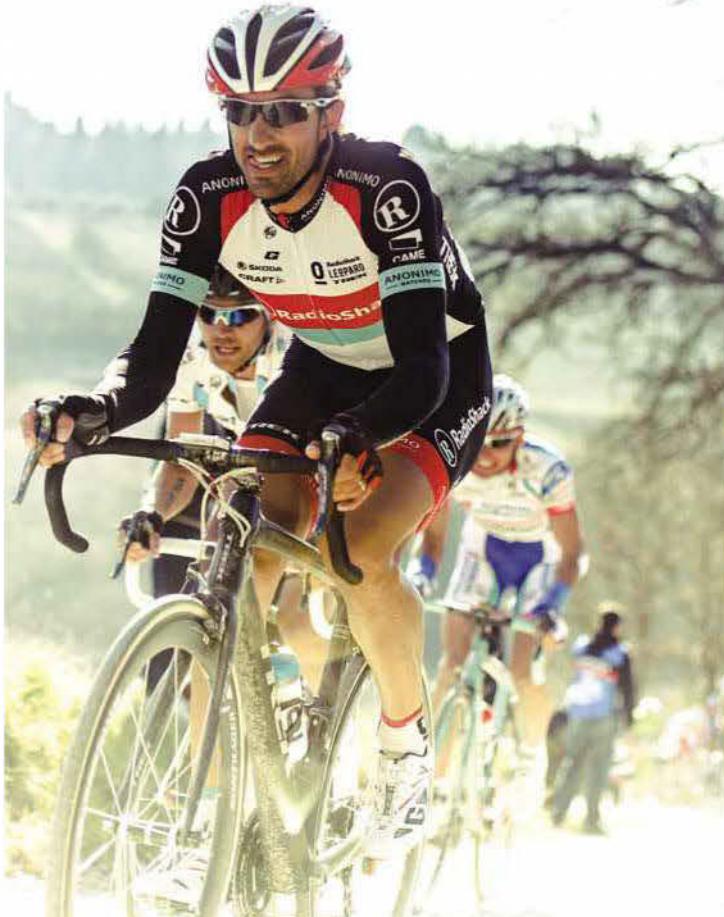
Michał Kwiatkowski (Pol),
Omega Pharma-Quick-Step

Some one-day races, such as Paris-Roubaix with its terrible terrain, or the Tour of Flanders with its cobbled climbs, sell themselves on their toughness, their history and their list of illustrious winners. But there's one race that deserves its place among them yet which is still so young that, figuratively speaking, it has only just had its stabilisers taken off.

The Strade Bianche, an Italian one-day race that takes place in Tuscany in March each year, boasts a similarly 'interesting' road surface, exciting racing and big-name winners, just like its more established northern European one-day counterparts. It can't compete when it comes to history, however, having first been run in 2007. That has a touch of irony, as the race grew out of the Eroica, a local sportive ride that had been running for a decade and celebrated cycling history thanks to a stipulation that everyone taking part must do so on a bike manufactured in 1987 or earlier, ▶

Above: Strade Bianche, which means 'white roads', takes its name from the chalky farm tracks that punctuate the route.

Right: Two-time winner Fabian Cancellara feels the heat during the 2013 edition





When it's dry, the bumpy, loose surface of the gravel sections threatens to unship you at any moment, as Cancellara's Trek team-mate, Riccardo Zoidl, found out on one of the short, sharp descents in 2014, breaking his collarbone in the process



► and dress in vintage cycling clothing. The first edition of the pro event – then called the Monte Paschi Eroica – took place two days after the Eroica sportive in October 2007, but fans didn't have long to wait until its second running. Just five months after the inaugural edition the race was back, having been moved to March. The change in the Strade Bianche's position on the calendar made it an ideal warm-up for the Tirreno-Adriatico stage race, which starts just four days later, as well as for Classics such as Paris-Roubaix and the Tour of Flanders, both of which follow in April.

It's also become a race to win in its own right, having quickly gained kudos and support from fans as a must-watch, early-season one-day Classic.

White heat

The route of the Strade Bianche still follows much of the same route as the Eroica, and it's these roads that are both the race's main selling point, and the origin of its name. *Strade bianche* means 'white roads', referring to the chalky, flinty farm tracks that snake through the region. These sections of gravel roads – or *sterrati* – punctuate the asphalt road sections in much the same

front when you hit the sectors,' he tells *Cyclist*. 'In Roubaix, it's about finding a rhythm on the cobbles. You need speed, as if you're flying over them. On gravel roads, which go seriously up and down, the skills are different.'

The surface may be different, but the vital requirement for concentration is the same. When it's dry, the bumpy, loose surface of the gravel sectors threatens to unship you at any moment, as Cancellara's Trek Factory Racing team-mate, Riccardo Zoidl, found out on one of the short, sharp descents in 2014, breaking his collarbone in the process.

'Your position in the peloton is crucial, just like at Paris-Roubaix,' says current road-race World Champion and defending Strade Bianche champion Michał Kwiatkowski of Belgian team Etixx Quick-Step. 'You have to always stay focused, stay upright, and stay near the front.'

While the threat of rain – and therefore more crashes – isn't as big as at Roubaix, neither is springtime Tuscany immune from adverse weather. The *strade bianche* were also used during stage 7 of the 2010 Giro d'Italia, turning the *sterrati* into pale-brown ice rinks, from which a mud-soaked Cadel Evans emerged to take the stage win.

Italian drama

What the Strade Bianche lacks in history it more than makes up for in stunning scenery. This is the Tuscany of which dreams are made, and it contrasts starkly with the grim bleakness of north-east France or Belgium. The race starts in San Gimignano, 40km south west of Florence, and finishes in Siena, both of which have been named UNESCO World Heritage Sites.

The Tour of Flanders and Paris-Roubaix date back to 1913 and 1896 respectively, but according to Cancellara the Strade Bianche could one day match their importance on the international cycling calendar.

'Why not? It has the potential to become really big,' he says. 'It may take some time before that happens, but the main ingredients are there: big riders, scenic landscapes, a large fan base, a beautiful finish in Siena and, above all, one specific trait that sets the race apart from the others: the gravel roads. With every edition the legend will grow. ◁

way as the cobbled sections do at Paris-Roubaix. There are 10 distinct gravel sectors, totalling a quarter of the race route, with the first 2.2km sector coming after 30km. The seventh sector, which starts in Asciano after almost 150km of racing, lasts for 11.5km, most of which are uphill. Although no major climbs feature on the route, the undulating nature of the race and the gravel roads soon start to take their toll.

Fabian Cancellara, the Swiss three-time winner of both Flanders and Roubaix, and a two-time winner of the Strade Bianche in 2008 and 2012, warns against any suggestion that the sections of 'white road' are similar to the *pavé* of the north.

'You can't really compare them, other than that you need very good bike-handling skills and you need to be at the



Above: The Strade Bianchi is a chance to catch the big teams in action early in the new season

Left: Peter Sagan leads Michal Kwiatkowski in a breakaway during the 2014 race, which would come down to a sprint between these two at the finish...

Watching brief

See it here: If you can't go to watch it from the roadside, British Eurosport will once again come to your rescue by showing the concluding 90 minutes – 60km or so – of the Strade Bianche live on Saturday 7th March from 1pm until approximately 2.30pm.

Best bits: Try not to miss any of it – or at least what's shown on TV. Just like the cobbled sections of Paris-Roubaix, each stretch of 'white road' at the Strade Bianche will test the riders, and may provide the decisive attack, or indeed the decisive crash. But when the gravel is all behind them, and if there's no lone leader, look for the tough, uphill final kilometre into Siena to provide the springboard for the win.

Who to put your money on:
Any one of Michal Kwiatkowski,

Peter Sagan, Fabian Cancellara or Alejandro Valverde are likely to bring home the *prosciutto*, dependent on their confirmed participation, of course. Cancellara is going to be champing at the bit to make it three wins in Siena, while Kwiatkowski will be hoping that the infamous 'curse of the rainbow jersey' – basically celebrating too much in the off-season – doesn't strike. Providing it doesn't, he's the favourite again.

Long shots: If you want longer odds, 2013 winner Moreno Moser, who had a quiet season last year, could be worth a flutter. And for an outside bet, Austrian Matthias Brändle – whose name you'll recognise as the rider who beat Jens Voigt to set a new Hour record mark in October – might be worth a punt having taken top-30 placings in the last two editions.



As the 2014 race reached its climax, Peter Sagan simply had nothing left when Michal Kwiatkowski accelerated past him in the final 300m to take the win by 19 seconds

► 'My father is of Italian descent, so I have some Italian DNA,' Cancellara adds. 'I really enjoy racing in Italy, and in Tuscany in particular. It's just a beautiful race – very, very scenic, but also very, very hard. You don't win this race by chance.'

That's something last year's winner would also agree with.

'Racing in Tuscany is an amazing feeling,' Kwiatkowski tells *Cyclist*. 'The countryside is just beautiful. You have to try riding there at least once in your life. Just to ride your bike; never mind racing.'

Kwiatkowski had to outsmart Peter Sagan to win in 2014. The Slovakian champion had lit the blue touch paper with just over 20km to go, attacking the front group of around 15 riders on an uphill paved section, with only Kwiatkowski, clad in the white and red jersey of Polish champion, capable of going with him.

Kwiatkowski allowed Sagan to lead into the final kilometre, and on up through the archway of Siena's walled historic centre with 700m to go, the pair having worked together to build a lead of 45 seconds over the chasers.

Sagan still led up, and up, through the narrow streets, winding things up from the front, but he simply had nothing left when Kwiatkowski accelerated past him in the final 300m to take the win by 19 seconds, the Polish rider clutching his head in disbelief as he crossed the line.

'That was such a wonderful moment,' says Kwiatkowski. 'I think it was my most beautiful win until I won the World Championships. To add the Strade Bianche to my palmarès was truly an honour.'

We think you'll enjoy watching it, too. Be sure to tune in on 7th March to see if he can do it again. Whatever the result, you're in for a treat. ♦



Below: Peter Sagan crosses the line in second place in 2013 – his Cannondale team-mate Moreno Moser has already taken the win up ahead

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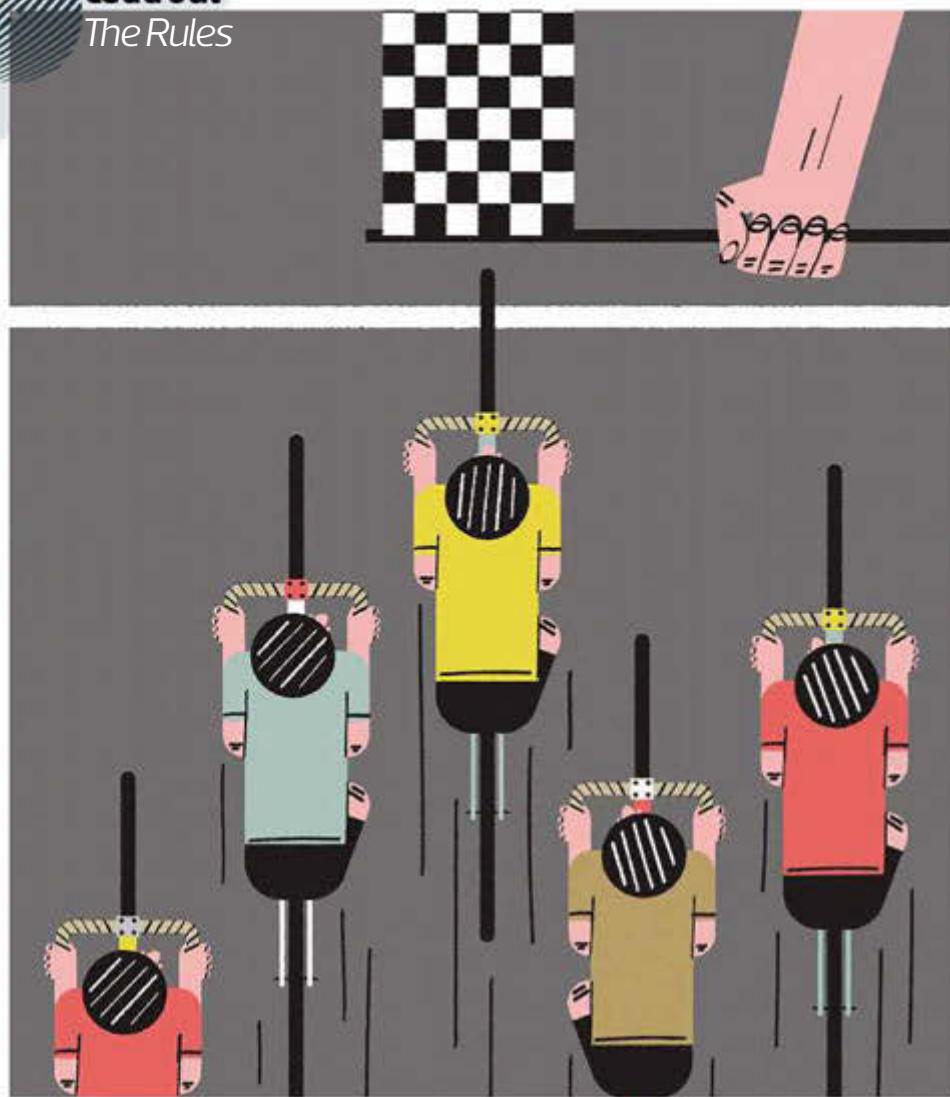
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Daylight snobbery

The professional elite draws justifiable admiration from the keen amateur, but it's not racing that defines a cyclist, says Frank Strack

Dear Frank

One of the guys at my cycling club asserts, 'You cannot call yourself a cyclist if you've never raced.' What's your ruling on this?

Andy, by email

Dear Andy

Road cyclists have a reputation for being elitist snobs, and that reputation is earned and carried proudly by people like your club mate. (Also by Velominati, although we aim to be funny while we're doing it.) Allow me to digress for a moment to point out that anyone can race. My curiosity is piqued by the fact that your mate's edict doesn't go so far as to set an expectation for how *well* one must race in order to be considered a cyclist. The point of competing, after all, is to win (Rule #70).

If I unwind the implied arrogance in the assertion, I do see where he's coming

from. There is nothing that matches the intensity, danger and excitement that comes with racing. The closeness of the pack, the racing in and out of tight corners, riding climbs at full gas when the scrawny waif of a *grimpeur* on the front turns on the afterburners. If you're still in it for the finale, your ability to keep your head about you while your eyes are bulging with effort could mean the difference between being in the winning move and rolling over the line in the laughing group. At the finish, it comes down to who wants it the most, which is the cyclist's way of saying it comes down to which rider is willing to suffer more than anyone else.

Artists suffer because they must; cyclists suffer because we choose to. We push ourselves in training, we do intervals, and we form groups to simulate the pressure of racing in the bunch. We head out early

in the morning for a day alone on the bike with the express purpose of meeting The Man with the Hammer.

But a race is always different. There is an extra cavern in the pain cave that can only be entered on race day. The adrenaline, the speed and the pressure push you ever further into its depths.

But racing isn't for everyone, and there is much more to cycling than just racing. Cycling is about the simple enjoyment of pedalling a bicycle and the sensation of flight as you hover above the tarmac with the wind in your face. A cyclist cherishes this above anything else.

Cycling is about camaraderie. It is impossible to suffer alongside a stranger – once the suffering begins, the stranger has already become a kindred spirit.

Cycling is about the history and etiquette of the sport. Ours is a century-old sport steeped in myth and legend. It embraces tradition and innovation equally, a fact that serves to build a culture full of contradiction and subtlety.

Cycling is about a love for the bike itself. The bicycle is a unique machine; the frame, the wheels, the components are beautiful things that convey not only the taste of its rider, but of those who built it. The bicycle itself is a work of art worthy of obsession.

Cycling is about self-discovery and improvement. Cycling is a difficult sport, and its practice requires that one learns to push beyond what the mind believes is possible. It takes courage to face the pain that lies along a tough climb, ready to be gobbled up like those dots in *Pac-Man*. Suffering cleanses the soul, and those who learn to suffer are better suited to face the hardships of life.

These are the qualities that define the cyclist. While their study leads those with a competitive spirit towards racing, a non-racer is perfectly suited to call themselves a cyclist.

We are cyclists; the rest of the world merely rides a bike. *



Frank Strack is the creator and curator of The Rules. For further illumination see velominati.com and find a copy of his book *The Rules* (Sceptre) in all good book shops. Email your questions to him at cyclist@dennis.co.uk



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Storming the Fortress



With its towering cliffs, precarious hanging roads and stunning scenery, the Vercors region of France should be teeming with riders. But as *Cyclist* discovers, it's blissfully tranquil

Words **JOSHUA CUNNINGHAM**
Photography **GEORGE MARSHALL**

hey call it "The Fortress", ' says Roger from the driver's seat as I sit gawping through the window of his car at the foreboding cliff faces of the Vercors Massif, stunned that something so dominating could appear so quickly from behind a bend in the road. Yellow-grey limestone rock intermingles with swathes of luscious green vegetation, pouring into gorges and spilling through valleys to create a truly unique, and slightly daunting, citadel.

Roger and his wife Teresa run a cycling holiday business, Velo Vercors, out of a converted villa in the town of Saint-Jean-en-Royans, just at the foot of the initial ramps of the massif, and it's there that we're heading now.

'I used to live down the road in Romans-sur-Isère when I raced in France full-time,' explains Roger of his former years as an ex-pat racer. 'That's how I first discovered Vercors. The training was just fantastic and I eventually thought, "I've got to go back." Nobody knows

Wispy clouds make for an eerie view. When the sun burns them away the vista is simply breathtaking



Plateau hopping

Discover the hideaways of the Vercors Massif

See tinyurl.com/p67hw6p for the digital file. Otherwise, from Saint-Jean-en-Royans take D54 to Sainte-Eulalie-en-Royans and D518 to Pont-en-Royans. In Saint-Romans, turn right onto D1532 to Cognin-les-Gorges. Take D22 for Gorges du Nan. After the plateau, turn left on the descent at Le Faz on D292 to descend into the Gorges de la Bourne. Turn left and head up the valley on D531, then turn right onto D103 and follow through Saint-Martin-en-Vercors. Head south on D518 for La-Chapelle-en-Vercors. Take D76 just before the Col du Rousset ski station to continue the loop, or go through the tunnel to see the view. Take D76 through Vassieux, over the Col de la Chau, and back to Saint-Jean-en-Royans.



'Nobody knows it's here because you've got the Alps on one side and Mont Ventoux on the other. It's an undiscovered gem'

it's here though because you've got the Alps on one side and Mont Ventoux on the other. It's an undiscovered gem.'

Nestled conspicuously in what is known as the Prealps (Alpine foothill territory spanning from Lake Geneva to Nice), it's easy for eyes to miss the italic lettering of 'Vercors Massif' when perusing a map of southern France. But what the area lacks in snowy peaks, 25km climbs and destinations immortalised by the Tour de France, it makes up for in mysterious tunnel passageways and cliff-hanging roads, rural French pastures, and a welcome lack of tourist hordes. It is, in short, a place that has seemingly been created for bike riding and, as our car pulls into the Velo Vercors driveway, the urge to get out and start pedalling is hard to suppress.

Calm before the storm

It's mid-September, and the morning feels typical of late summer in the mountains: the



► air is just on the pleasant side of fresh; a slow-rising sun paints deep orange hues onto the cliff faces high above, and the sky can't yet decide whether it's going to opt for misty or clear. As we sit outside eating breakfast, looking up at clouds slinking their way into The Fortress under the guard of the limestone ramparts, I feel a mixture of trepidation and impatience. I fear our assault on the great plateau will not be quite as stealthily executed as that of the slyly creeping cloud.

We kit up, make final positional tweaks to the bikes, fill our bidons and begin to weave our way through the streets of St Jean to find the beginning of our loop, a 145km tour of the massif. Bronzed locals watch the world go by from the comfort of their doorsteps: 'Bonjour, bonjour.' Cafe owners wipe down their tables, and small vehicles that look far from road worthy clatter through the town square. It's all very European, and I'm tempted to make an early coffee stop and just wallow in the gentle ebb of daily life, but I shake it off and turn my attention to pedalling.

It's only when we're within spitting distance of the blockade that a tiny hole in the adjacent cliff reveals itself



Our first few kilometres skirt the western flank of the plateau, through shady walnut groves and over a series of agricultural bridges spanning the streams making their way off the plateau, destined first for the Isère river, and then the mighty Rhône.

In the quaint town of Pont-en-Royans, a place in which every building appears to be perilously stuck to a cliff, we traverse the Bourne river, and in doing so cross from the department of Drône to that of Isère. But more importantly, we're also granted a glimpse into the massif interior through a gap in the cliff, forged by the Bourne river and only just wide enough for a single lane road to slip through. It leads to the Gorges de la Bourne, before climbing up onto the plateau, but Roger insists the time for our assault on The Fortress is not yet upon us. At ease, soldier, at ease.

The Vercors region is home to an extensive cave network as well as frequent tunnels. When you can't go over a mountain, go through it



Reference to the Vercors Plateau as a single entity is easily done, but it's something of a misnomer as both 'Vercors' and 'Plateau' originally refer to specific areas within the massif at large. To the north west, and against whose defenses Roger has planned our attack, is the largely forested Coulmes region, a place of wild gorges and even wilder cliff-hanging roads. East of that is the Quatre Montagnes region, a popular ski destination during winter and home to an extensive cave system, including the Gouffre Berger, which at -1,122m was until 1963 thought to be the deepest cave in the world.

South of the Quatre Montagnes are the High Plateaux, which unsurprisingly are home to Vercors' most elevated peaks, with La Grand Veymont the highest at 2,341m. The final piece in the jigsaw is the Vercors Drômois, home to the town of La Chapelle-en-Vercors, and layer of claim to be the original *Vertacomirien*, which is what the natives are known as. The Drômois is typified by meadows of grazing sheep, moving up and down the hillsides of the plateau with the seasons, as well as breathtaking gorges such as Combe Laval and Grand Goulets. ◁

The rider's ride

Seven Axiom SL, £3,500 (frameset), cyclefit.co.uk

'Titanium isn't an overnight love affair,' said CycleFit's Phil Cavell when *Cyclist* popped round to pick up the shiny Seven Axiom SL that would be ferrying us around Vercors. But while it may not have the instant kick and speed sensation that often typifies high-end carbon bikes, the Axiom SL delivered an equally desirable set of take-me-home qualities.

For one, it is wonderfully smooth, both in ride feel and aesthetics – the absorptive geometries of the Axiom SL are able to iron out the road with

ease, while the welding of tubes and the flushness of their edges are impeccable.

The build quality affords the rider a sense of security and confidence – this is a bike made to endure hours upon hours of comfortable riding... for year after year.

The Bontrager Race X Lite TLR wheelset is a worthy accompaniment for the unpredictable mountain weather, but equally a pair of deep section carbon hoops could perhaps transform this bike into a far racier machine.





➲ This tangle of plateaux, gorges, canyons and rivers made inter-regional travel and communications an arduous task throughout Vercors' history, and the separate communities were once very isolated. Roads have since been carved, and the regions of Vercors have become increasingly unified, but long detours are still an inherent part of journeying around here, and it's no doubt because of this that exploring the region by bike is so enjoyable. Where the motorist loses, the cyclist gains.

Battle stations

We roll into the village of Cognin-les-Gorges, and Roger, following signs for the Gorges du Nan, signals to turn off. The first buttresses of the plateau erupt out of the ground in a wall of green vegetation ahead of us, but the road manages to find an opening in the thick forest and begins to pick its way back and forth up the face of the cliff.

The easy pace of our opening 30km is quickly forgotten as the little ring is engaged and the conversation stagnates amid heavy breathing. But after only a few switchbacks the road seemingly comes to an abrupt halt directly ahead of us, as though a landslide has tumbled across its path. I look over at Roger a little confused, but he merely smiles and continues riding on. It's only when we're within spitting distance of the blockade that a tiny hole in the adjacent cliff, no more than two metres in diameter, reveals itself, allowing the road to make a 90° turn and funnel discreetly into it. The roof of the tunnel feels so low that I can't help riding with a stoop, and I slide my sunglasses down my nose so as not

Roger has ridden this road hundreds of times, but it seems the novelty doesn't wear off



to crash into something in the gloom, but this 30m stretch of darkness is like a portal to a new world, and we exit it like the children of Narnia into the heart of the Gorges du Nan.

The road we find ourselves on has been dug, or more likely blown with dynamite, into the side of the cliff, and all that separates it from the perilous drop on our right is a meager foot-high wall. Roger has ridden this road dozens, if not hundreds, of times, but it seems the novelty ◉

Top: Forests abound along the route, and many are managed by the state to protect wildlife including griffon vultures, alpine ibex goats and wolves (not pictured)

Above: Local buildings are the absolute epitome of rural France



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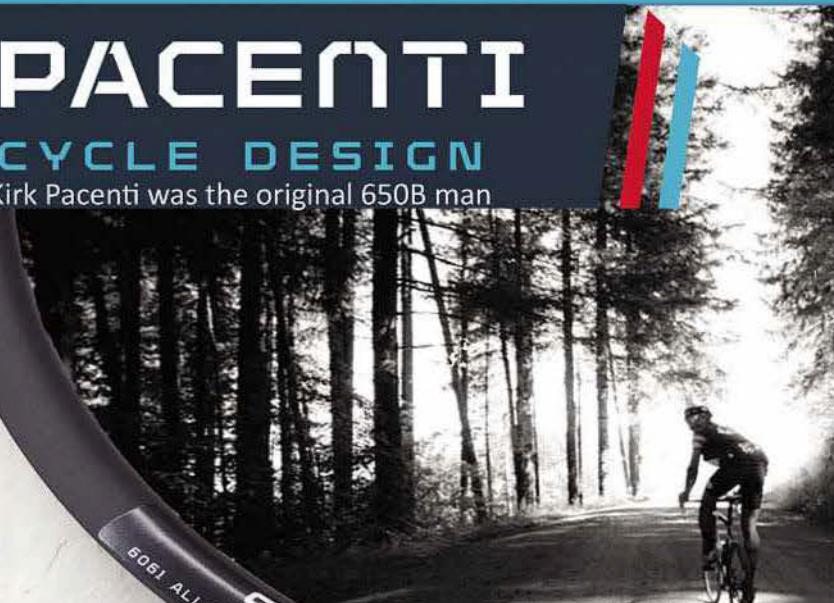
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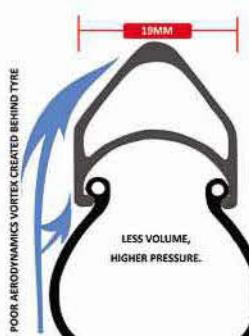
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The carcass of a burnt-out plane is a striking reminder that this region saw some intense fighting during the Second World War



► doesn't wear off: 'Pretty amazing, huh?' he says as I gaze up through the gorge, past the interlocking spurs of limestone cliffs and dense forests to the edge of the plateau high above.

Behind us a slit between the two sides of the gorge reveals a view back across the Isère and its surrounding walnut groves, but those rolling roads are a thing of the past now, and we've still got another 12km of climbing before we reach the Coulmes plateau.

Once out of the Gorges du Nan the landscape becomes more expansive as the plateau starts to reveal itself. It's hard to gauge just how much height we're gaining because we have now become insignificant specks on the hillside.

As we press on, a trickle of riders appear, slogging their way up an incline ahead. 'Bonjour, ça va?' I say to the rider at the back of the bunch when we draw up level, although I suddenly regret it when I realise I haven't got a clue



the tight, ravine-like Gorges du Nan. It's simply vast. Standing at the edge of the valley we're granted a view that stretches for miles across the green-filled gorge, the sea of flora broken only by a series of limestone monoliths, stacked like the tail of a stegosaurus before they converge into one at the plateau.

I let Roger take the lead as we begin to descend – the road is a mere sinew, and his knowledge of its twists and turns is crucial if we're to take it at speed. My attention is still being wrested by the view though, and before I know it I'm playing catch up, occasionally catching a fleeting glimpse of Roger framed against colossal scarps of rock, or appearing through gaps in the trees on a hairpin below.

Once we reach the valley floor we turn left and begin to head east up the valley, tracing the Bourne river all the way to the top, and once between the cliffs it's like navigating the passages of gigantic termite mound. ◉

what he's saying in response. 'Er, *Anglais*,' I timidly offer back.

'You're English? Dude, why didn't you say?'

It turns out this mini peloton of Québécois has journeyed over from Canada, and they are only too keen to proffer elaborate descriptions of the routes and climbs they've discovered in the past week. When I learn that there are more than a few crossovers with our ride today, my eagerness almost has me clicking up a few sprockets and racing to get to the next gorge, but I remind myself to rein it in. There's plenty more riding ahead.

The termite mound

The top of the Coulmes plateau is covered with forest, and for a moment we are hemmed in by trees, but soon we round a corner and are transported into yet another world as the Gorges de la Bourne comes into sight. It's different from

It's hard to gauge how much height we're gaining because we have become insignificant specks on the hillside





Despite having made our way onto the plateau, the road is still sneaking upwards in an undulating fashion

► The road is a little more travelled than that of our first climb, but the two-lane carriageway is still almost entirely traffic-free, and there are countless tunnels, overhangs and sheer drops to delight over as we ascend.

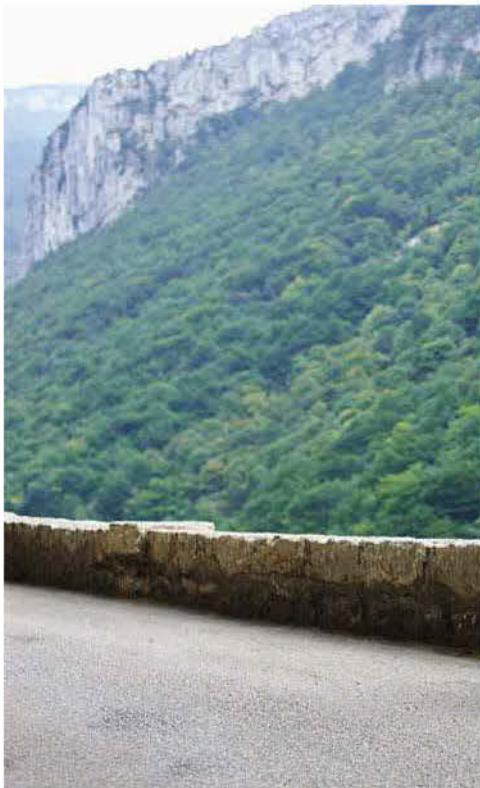
We skirt through the south-west corner of the Quatres Montagnes region as we reach the top of the climb, before turning south and making our way across the valleys of the Drômois. Roger points out a dark, gloomy tunnel behind a gated entrance with a sign saying '*fermée*': 'That's the old Grand Goulets road,' he says. 'They closed it in 2005 after there were a few motoring accidents, but the road is still perfectly useable.' (When I get back I search the internet and duly discover that the abandoned passageway, built in the 1840s, is a playground of tunnels, overhangs

and precipices). 'I don't understand why they don't reopen it for cyclists and walkers,' Roger adds. 'It's spectacular down there.'

The sun continues to resist the probing clouds above, and we make the most of its warmth with a *café au lait* in the village of La Chapelle-en-Vercors, right in the heart of the plateau and surrounded on all sides by rolling green hills, before tackling the southern leg.

A ride on the wild side

Despite having made our way onto the plateau, the road is still sneaking upwards in an undulating fashion – two steps forward, one step back – as we skip between valleys, cross over streams and negotiate our way through the countryside. To the east is the *Parc naturel*





La Résistance

Vercors' role in occupied France

During the Second World War, rural cells of the French Resistance were known as the 'Maquis', with the Vercors contingent being called the Maquis du Vercors, finding their home amid the natural defenses of the limestone fortress.

In the spring of 1944 the French Militia, the paramilitary force of the Vichy Régime, attacked the village of Vassieux en Vercors, a known Resistance stronghold, burning farms and killing or displacing inhabitants. Their efforts fell initially short though, and on 3rd July 1944 a string of

towns and villages on the plateau declared themselves the 'Free Republic of Vercors'.

Axis powers were not amused, and later that month deployed 20,000 men in the area. The Battle of Vercors cost the lives of 639 *maquisards*, 201 civilians and 150 Nazi and Militia soldiers.

Today the lives of local soldiers are commemorated with the numerous cenotaphs and cemeteries in the region, such as the one in Vassieux, and countless Croix de Lorraine, the symbol of the French Resistance.



régional du Vercors, and the towering heights of the High Plateau, devoid of any human residence, roads or infrastructure. The view along the outermost cliffs, running from north to south, and of Mont Aiguille, the natural obelisk reminiscent of Utah's Monument Valley, is a spectacular one that only hikers have the pleasure of seeing, but I can imagine its presence on the other side of the partition nonetheless. Along with knowledge of the park's re-introduction of griffon vultures and the iconic alpine ibex goat, the feeling is of a wild frontier. 'There are wolves in there, too,' says Roger helpfully as we amble past a particularly thick portion of forest.

The southernmost point of our ride takes us past a deserted ski station and through a tunnel to the top of the Col du Rousset, a 20km climb that winds its way up onto the plateau from the town of Die. From our vantage point we see the road slinking down the hillside; the only trace of life in an otherwise untouched, forested panorama. The density of the green, the magnificence of the limestone cliffs and the hazy bluishness of the mountains stretching

Above left: Like the mountains that house them, the towns and villages in the Vercors region tend to sprawl upwards





The road around the
Combe Laval gorge
took 37 years to
complete. It's not
hard to see why



out into the distance have an air of South America about them.

'It's funny. From here on south, it's very Mediterranean,' Roger says, bringing me back a little closer to home. 'It looks different, the climate is different, and there are loads of vineyards.' And had we taken a more direct route to here from St Jean, I muse, it would potentially all be ripe for exploration, too.

We whizz down a few hairpins of the Rousset – they are just too irresistible – before turning round hesitantly and continuing on our way.

Our excursion to the Col du Rousset vista has allowed our odometers to creep over 100km, and as we turn back north and drop into Vassieux en Vercors we also enter the final third of our loop. Vassieux itself lies as the only settlement in a

the forests we passed through in Coulmes and the High Plateau it's a managed state forest, and originally it was the transportation of its timber that provided the impetus for building the road we're about to negotiate, clinging to the side of the Combe Laval gorge and known as the Col de La Machine.

During the 19th century, at which point logging was the main economic draw of the Vercors region, the network of trails linking the inner plateaux with the surrounding trade towns, including St Jean and Die, became insufficient. It was decided that a more efficient route off the plateau was required for the horse-drawn timber carts, and so after the successful building of the (now defunct) Grand Goulets road, work began on the Combe Laval equivalent in 1861. It wasn't until 1898 that the road was completed, after construction methods that reportedly included men dangling down the cliff armed with bundles of dynamite, who placed them in cavities and then swung out of the way before detonation.

We pass a small hotel on our left-hand side before the road drops off with a little more purpose, and then – not for the first time today – as we round a corner the view of the vast circular gorge of the Combe Laval reveals itself from seemingly nowhere.

Cutting almost 4km into the plateau interior, the Combe Laval's grandeur is only exaggerated by perilous vertical cliffs, hundreds of metres in height, that surround the perimeter, and by

Cutting almost 4km into the plateau interior, the Combe Laval's grandeur is only exaggerated by the vertical cliffs

natural rectangular plain – technically known as a *polje* when found in this karstic limestone relief – and walled on all sides by wooded mountainside. I spot the carcass of a burnt out plane on stilts, surrounded by the distinctive sight of uniform war graves, and Roger is quick to inform me that Vercors was a key stronghold of the French Resistance, and Vassieux the scene of a bloody battle during the Second World War.

We stop and reflect for a moment at the memorial cemetery, nestled at the foot of a towering wall of trees, before clawing our way back out of the basin to what is the highest point of our ride, the Col de la Chau, at a modest 1,337m. Some unemployed ski lifts show that it's still high enough though, and I drag my gilet out from my pocket after Roger happily reminds me: 'It's all downhill from here.'

The final push

As we descend through the trees, a sign announces our entrance into the Fôret de Lente, a 3,000 hectare wilderness of wolves, wild boar, wild sheep and deer. Similar to

By the numbers

Every stat tells a story

3,683

metres climbed

148

kilometres cycled

1

burnt-out WWII plane spotted

12

locals who said hello on our way past their front doors

639

locals who died in WWII are commemorated on the route

0

wolves spotted. Thankfully





We stand overlooking the precipice from the top of the Col de La Machine, bathed in a supernatural light that is a result of the sun grappling with the thin cloud

the low-lying cloud swirling menacingly in its belly. We stand overlooking the precipice from the top of the Col de La Machine, bathed in a supernatural light that is a result of the late September sun grappling with the thin layer of cloud.

The climb (that we're about to descend) is 13km back to St Jean, and its summit, at 1,011m, perches almost 900m above the valley floor below. The road trickles off to our left through a tunnel, before reemerging further down from a vertiginous hole in the cliff, with sheer faces both above and below.

While coasting our way back to base, in and out of the Combe Laval tunnels on a narrow shelf of road and looking out across the abyss, the scenes are nothing short of spectacular. Our victory at the Fortress is complete. It's time to beat a retreat. 

Joshua Cunningham is currently on a solo bike ride around the world. He should have made it to Southampton by now

It's tempting to join the locals and watch the world go by, but *Cyclist* has important business to attend to

While you're there

Make the most of your trip to Vercors

ACCOMMODATION

With B&B and self-catering facilities, Velo Vercors is the perfect base from which to discover Vercors, and guided rides with Roger will enable a thorough exploration of the plateau and beyond (velovercors.com).

DAY TRIPS

With Mont Ventoux only two hours to the south, and Alpe d'Huez 90 minutes east, why not journey around and tick them off the to-do list? And pack some hiking shoes for your 'rest' day.

TOUR DE FRANCE

The 2015 Tour de France is due to pass just south of the Vercors, but well within riding distance to enjoy as a roadside spectator. Velo Vercors offers TdF packages with excursions, too.

FOOD AND DRINK

Raviolies are a small cheese and herb ravioli typical of the Vercors, and Bleu du Vercors-Sassenage is the local cheese. Walnut wine is available in certain places, while Côtes du Rhône wines are aplenty.

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The **KNEAD** for **SPEED**

The pros wouldn't dream of skipping their post-ride massage, and a bit of muscle manipulation can help the everyday rider as well

Words **MICHAEL DONLEVY** Photography **DANNY BIRD**



For pro riders, getting a massage is as big a part of the Tour de France as posing on the podium and swearing at camera crews. Yet what actually happens when they disappear for a rub down is something of a mystery. A sports massage certainly sounds important, but that's not to say many of us know precisely *why*.

'Massage has been around for hundreds of years,' says sports therapist Ian Holmes (prosportsmassages.com), who works as a soigneur for UCI Pro Continental team Madison Genesis. 'It puts pressure on blood vessels and forces blood through at a cellular level to areas that aren't getting blood flow as readily. Exercise causes microdamage to the tissues, and massage aids recovery by helping blood reach these areas so you can train harder, with less rest.'

That sounds like something every rider could benefit from. And although 'sports massage' may sound like a highly specialised form of the treatment, that's not necessarily the case. 'Sports massage is a concept,' says Nick Dinsdale, founder of NJD Sports Injury Centre (njdsportsinjuries.co.uk) and former sports therapist for Chris Boardman and British Cycling. 'It's simply massage, used in sport for a variety of reasons to meet a range of objectives. It works in a number of ways: by reducing excessive post-exercise muscle tone, by increasing the muscles' range of motion, by increasing circulation and nutrition to damaged tissue and by deactivating symptomatic trigger points.'

'Sport massage uses general massage techniques but does tend to go a bit deeper than you'd get at a spa, and the level of discomfort might be greater,' adds Holmes. 'At a spa you get a body polish, which is still not without its benefits because a massage should be relaxing as well.'

A skin quartet

There are four reasons for having a sports massage, Dinsdale says: 'Athletes use pre-event massage to prepare for training or competition. They use post-event massage

to aid recovery, regular conditioning massage to reduce injury risk, and massage to assist in treatment and rehabilitation of sports injuries. What you're trying to achieve will affect what sort of massage you have.'

Cyclists ask a lot of their bodies, and for the average rider the most beneficial massage will happen when they get off the bike. 'In periods of intense training, the body may not recover fully between training sessions, which can result in reduced performance and increased susceptibility to soft tissue injury,' says Dinsdale. 'Plus, athletes who suddenly increase their training intensity often experience delayed-onset muscle soreness [DOMS].'

'As a cyclist you want a deep tissue, flushing massage,' says sports therapist Laura Dent (lsetreatmentclinic.co.uk). 'This means a firm pressure that clears waste substances out of the muscles. Waste substances are the byproducts of your body providing energy to the muscles, and include lactic acid and carbon dioxide. If these aren't cleared, recovery time is much slower and healing time delayed.'

Pain is an indicator that something's wrong and that you should stop, but the sports therapist can help you heal quicker. 'If you go to your GP, they'll tell you to take painkillers and rest,' says Holmes. 'That's not to put down GPs, because they don't want people making their injuries worse, but a sports therapist will get you riding again by treating you and gradually reintroducing the training load.'

'There are many techniques, but one common one is trigger point massage, which works on set, tender areas of the body,' he says. 'A small area can affect the whole muscle. So if you have a sore back, working one or two trigger points can ease the pain.' ▶

Home comforts

Sports therapist Laura Dent from The LSE Treatment Clinic offers tips to your partner on how to give a sports massage at home

- Always work towards the heart. This is to help the body clear waste products via the circulation – the heart and lungs process these substances and remove them from the body.
- Use firm pressure that doesn't cause pain.
- Have a picture of the muscle anatomy in front of you so you can see how the muscle should look and feel.
- Always use a lubricant to avoid skin irritation. The best oil is Chemovine.
- The major muscle groups in the legs are calves, hamstrings, quads and glutes. Start at the bottom of the leg near the ankle and work up. Use long, firm strokes with your whole hand, mixed in with firm pressure from your thumbs.
- Stretching and foam rolling is useful in between massages and should always be completed after exercise.
- If you're brave, have an ice bath after exercise. This can be cold water in the bath covering the legs for 10 minutes. Wiggle your legs throughout to avoid creating a microclimate around the legs and not gaining the full benefit of the coldness. The coldness shuts off capillaries and reduces the micro bleeding that causes delayed onset muscle soreness – that aching feeling you feel the day after exercise.





Chris Snook
Evans Cycles PR Manager

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'Massage is therapeutic beyond the specifics. It's very emotional. You're laying yourself bare to that person'

‘A good masseur will go deeper the more regularly you go,’ says ABCC senior coach and former pro team manager Ian Goodhew. ‘Working a muscle is like kneading dough, which will be more fibrous after it’s been moved around. In the short term it’s about aiding recovery. In the longer term it can help muscle tone and help muscles respond better to exercise. The benefit grows the more you ride.’

‘Massage is also about restoring muscle length,’ Holmes adds. ‘If you’re sat at a desk all day your hip flexors will be shortened – your muscles adapt to the length your body needs them to be for whatever it’s doing, and massage can reset them. A lot of the time I’m working against the negative effects of posture during the day.’

You might also hear a sports therapist talk about knots in a muscle. ‘A “knot” is known by therapists as an adhesion,’ says Dent. ‘This is a formation of old tissue that hasn’t been cleared away as it should – something that happens more with age. It can be formed by broken muscle tissue, scar tissue and waste byproducts. It clumps together, getting in the way of new muscle cells, and can be painful if nerve endings are attached. Massage helps break these down and encourages the body to clear them away.’

Having a rub down isn’t the only thing you can do to help prevent injuries. Warming up before you ride and stretching once you’ve finished can complement any massage you might have.

‘There are different schools of thought on stretching,’ says Ian Holmes. ‘People used to stretch before exercise but research found that this can actually decrease power output. I prefer a dynamic warm-up, using functional movements similar to the exercise you’re doing, such as forward lunges or a stint on rollers.’

‘Depending on how massage is applied, it can have similar effects to stretching on certain soft tissue structures,’ says Dinsdale. ‘There are specific massage techniques that can be used to stretch localised tissue. But I’d recommend conventional stretching in combination with massage – especially where a rider has a specific problem or restriction in range of movement.’

‘Post-exercise stretching certainly helps, especially when the muscles are still warm,’ Holmes says. ‘For every muscle that expands, another contracts – for example quads and hamstrings – and tiny sections of muscle remain contracted. Stretching helps iron these out, so I’d recommend doing that straight after exercise and having a massage an hour or so later. A good masseur will give you advice on stretching, exercise or using a roller – it’s not just laying hands. They’ll treat you holistically rather than just rub your legs.’

That’s not to say your legs aren’t important, Holmes adds. ‘Of course in cycling legs are the engine and will

benefit from massage, but a lot of cyclists have more problems with their neck and back. The pros are used to riding for six or seven hours at a time so massage will concentrate on the legs, but leisure cyclists suffer more with the back, neck, hip flexors and even glutes.’

Dinsdale agrees, adding, ‘When you go for a massage, you should always have clear objectives in your mind as to what you’re trying to achieve. Don’t just ask for a leg massage because you’ve spent four hours pedalling.’

When push comes to shove

The case for massage seems undeniable, but what would actually be the difference in terms of performance if the pros didn’t get a massage after each day of a stage race?

‘This is a good question,’ says Dinsdale. ‘I do believe there are real physiological and psychological benefits to post-race massage. It helps the rider relax and sleep better, and sleep itself helps recovery.’

‘The pros will be on the bench for 45 minutes and there’s a huge mental element to it,’ Holmes adds. ‘The brain controls the muscles, so when you’re tense the muscles are tighter. On the Tour of Britain I was giving massages every day, and this is definitely in part for psychological reasons. A stage race is taxing and your body is slowly breaking down every day. Massage slows the breakdown and without it the risk of injury is a lot higher. It’s for maintenance and a speedy recovery, as well as trying to cure any niggles. It can be like spinning plates.’

‘At the highest level there is constant stress on every rider, from their rivals, from the press and from within their teams,’ he adds. ‘A soigneur builds a rapport with his riders – they’ll spend an hour on the bench with you, with no team manager or reporters. They can talk to you and you build up a level of trust. If the brain gives way the body can’t function. Little niggles can become big problems.’

‘A good masseur is the person the riders will always talk to,’ Goodhew agrees. ‘They might have aches and pains or a bruise from a fall that they don’t want to talk about, so they’ll ask the masseur for advice and help. The masseur will likely then discreetly tell the team manager about it so they can react.’

‘What people don’t realise is that massage is therapeutic beyond the specifics,’ he adds. ‘It’s very emotional. You’re laying yourself bare to that person, literally. And that goes for both the pro and the amateur alike.’

How much, how often?

If you’re sold on the benefits of massage, the next question is how often you should have one. ‘This depends on the reasons and objectives,’ says Dinsdale. ‘Ideally, you should have one after each endurance event to help promote

A good masseur will be able to identify and treat certain trigger points in the body that can cause pain over a much wider area



Lay your hands on these

These simple yet effective pieces of kit can complement a regular sports massage

TP Trigger Point GRID Foam Roller
£34.99, healthandcare.co.uk
A roller is a piece of DIY fitness kit that is almost universally recommended. Different textures on this roller claim to mimic finger, thumb and palm sports massage techniques, and you can use it on most muscle groups. Roll towards the heart where possible, and don't use it as a torture device.

Lacrosse Ball Multi
£3.95, zenithlacrosse.co.uk
Can be used in conjunction with or instead of a foam roller – you place the ball under your calf, for example, and rotate your leg to mimic the effects of massage on soft tissue. It can be painful, so you can start off with a slightly more forgiving tennis ball to get used to the sensation.

The Original Index Knobber II
£16.99, healthandcare.co.uk
It might look like a hollowed-out rubber duck but the Index Knobber can be used during a home massage to apply deep and sustained pressure to trigger points and sore muscles. It does require great care so as not to cause pain, but on the plus side it is easier on the masseur's hands.

Melrose Massage Oil
£19.99, massagewarehouse.co.uk
A sports therapist might slather you in oil, but it's not a gimmick to make them look more professional. Fragrance-free Melrose oil will make the skin smoother for the masseur and contains vitamin E, an antioxidant that helps disperse harmful molecules called free radicals that can result from strenuous exercise.

'I'd say there's a false economy in cycling – people spend a lot of money on fancy new kit but not on their bodies'

recovery and help relaxation ready for the next session or stage of a race. Pre-event massage is more appropriate for short, explosive events such as sprints, to stimulate mind and body. Regular weekly routine massage is good to identify potential soft tissue problems – the objective is to prevent overuse injuries and help control fatigue. When riders have soft-tissue injuries, massage can be used throughout the various stages of healing to speed up recovery, in combination with other forms of treatment.'

'It also depends on your budget,' says Holmes. 'If money's no option I'd say weekly or fortnightly. If it's the latter you can use foam rollers at home to help target specific areas in between. But if you can't afford it that regularly, every couple of months is OK too. It's also good for reminding people what they should be doing. It's like when you go to a physio and they give you exercises to do – you do them for a couple of weeks and then forget. I'd say there's a false economy in cycling – people spend a lot of money on fancy new kit but not on their bodies. It's best to go for a massage before you get an injury. Most of my regulars don't tend to get injured because they know about recovery. It's the ones who come and see me irregularly who need treating because they've hurt themselves.'

'Ultimately it's down to the rider, and how he or she feels, but you're likely to benefit more during a period

Massage should use firm pressure that might cause momentary discomfort but it should never hurt. If it does, you're using the wrong therapist

of intense training,' says Dinsdale. 'Fatigue levels and tissue distress can build up rapidly. Lower-intensity rides are less destructive on tissue, produce less waste and are psychologically less draining.'

If you talk to enough cyclists about massage, the chances are you'll find one who says that it hurts, but that it's OK because it's actually doing 'good' damage. You might want to think twice about using their therapist.

"Good damage" isn't a phrase I'd ever want to hear a therapist say to me,' says Dent. 'A massage doesn't have to be painful to be beneficial. The "flushing" usually comes from a stroke called effleurage and isn't painful.'

'Massage is one of the safest therapies, but knowledge of the anatomy is essential,' says Holmes. 'A bad massage can cause bruising and actually accelerate other problems. The system of valves in our veins are one-way, designed to help blood flow from the heart, around the body and back to the heart. You should always massage towards the heart, forcing blood through but in the right direction. Getting it wrong can damage the vessels, although that's unlikely if you're getting a light massage from your partner.'

'If a massage doesn't work towards the heart it pushes the waste further into the legs,' says Dent. 'This shouldn't cause long-term damage but it can take the body longer to recover and heal. There are also areas that should not be worked on without the appropriate knowledge such as behind the knee, the abdomen and the neck.'

'Massage can be mildly painful but shouldn't really hurt or leave you bruised,' Goodhew adds. 'If it does, don't use that person again.'

Timing is everything

'The pros have a massage within an hour of getting off the bike, but for the rest of us it's a very individual thing,' says Holmes. 'You need to see what works for you, although I wouldn't recommend having your first massage before a big event. Often cyclists have it on a Monday, after a big ride or race on Sunday. They might be a bit sore on Tuesday but will be OK by Wednesday.'

'I'd ask my client what their plan is,' he adds. 'If you have tender trigger points or a deep massage you can feel discomfort for 24 to 48 hours afterwards, but you should still be able to do a 30-minute recovery ride. This will help flush the soreness out of the muscles.'

Just make sure you find someone who knows what they're doing. 'There are many qualifications out there, some good and some not so good,' says Dinsdale. 'Massage should be safe and effective. Experience is essential in any profession, and masseurs applying for major sporting events – such as the Olympics – require a minimum of 500 hours practical sports massage. A good massage therapist should also have an understanding of human anatomy, physiology and pathology, and the ability to apply this knowledge when practising massage.'

'If you're riding every day – on holiday or on a stage race – you're riding in a state of partial recovery and you may not be used to it,' says Goodhew. 'Massage becomes even more important in that case.' *

Michael Donlevy is a freelance journalist who has never been known to rub people up the wrong way





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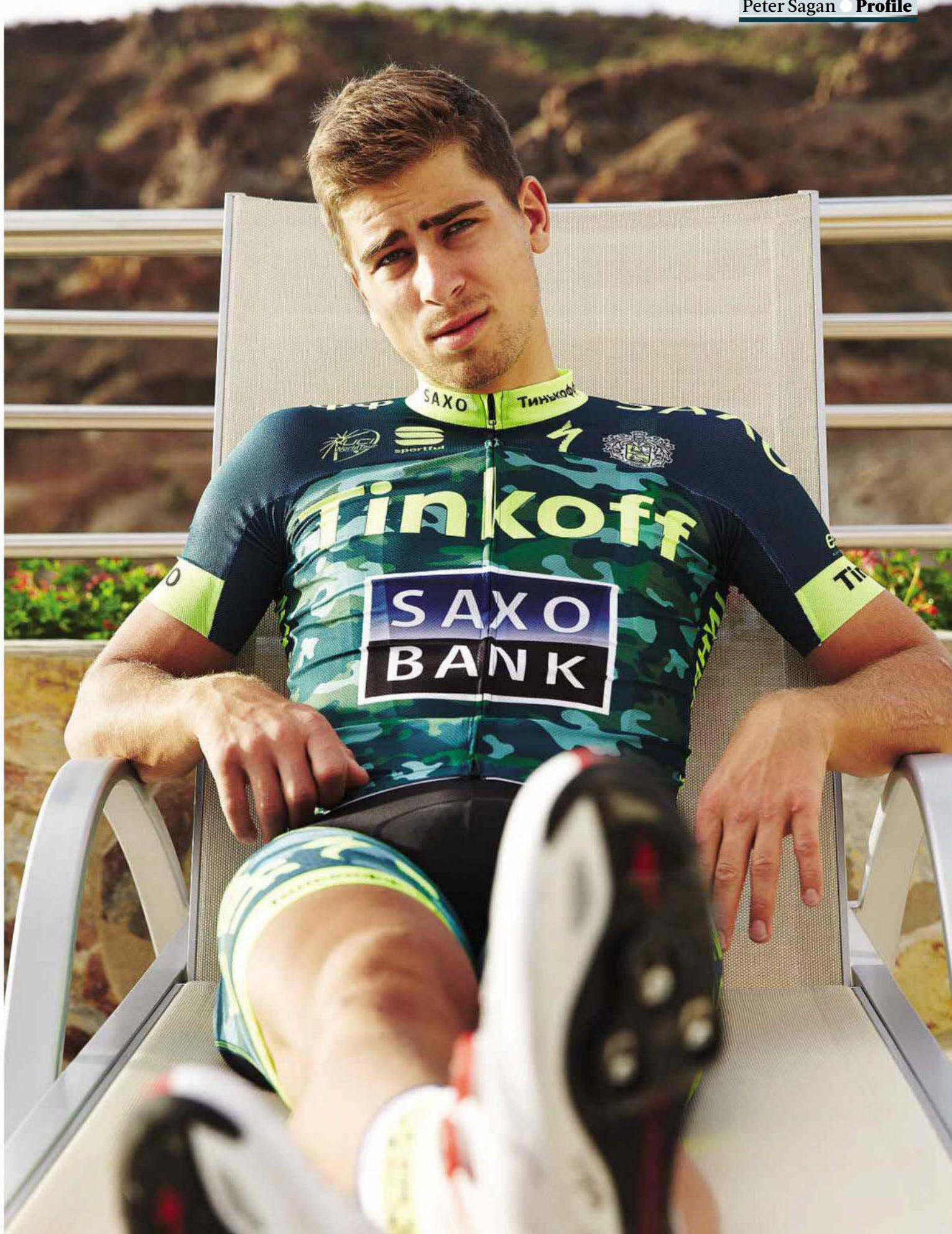


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Who's the man?

He's got the swagger, the boyish good looks, the innate talent and now, thanks to Tinkoff-Saxo, a fortune in the bank. What he doesn't have is the Monument win he wants so much. *Cyclist* meets Slovakian superstar Peter Sagan and asks whether 2015 is the year he matures into one of the sport's true greats

Words **JAMES WITTS** Photography **JUAN TRUJILLO ANDRADES**



t's early December and *Cyclist* is in Gran Canaria to meet cycling's hottest property, Peter Sagan, as he settles into his new team, Tinkoff-Saxo. The 24-year-old (he turned 25 in January 2015) seems very relaxed, confident and happy to talk – but our photoshoot has unexpectedly hit a snag thanks to UCI regulations.

'Unfortunately, we can't have photos of Peter in his Tinkoff kit go public until 1st January 2015,' says Tinkoff's communications director, Pierre Orphanidis. 'He's contractually obliged to wear Cannondale apparel until 31st December 2014. So we must remain in this room for the pictures.' Outside in the hotel corridor prowl Danish journalists. The year before, they were haranguing team manager Bjarne Riis over historic doping allegations. Now they're here for Peter and it has created a cagey atmosphere. 'One online image of Peter in Tinkoff kit and the team will be in trouble,' warns Orphanidis.

Sagan's stock is so high that our interview is being carefully monitored by Orphanidis, who hovers nearby. Tinkoff-Saxo certainly know the value of managing exposure. As soon as the last verses of 'Auld Lang Syne' have been sung, Tinkoff's PR team will go into overdrive and release a slew of videos of Sagan wheelieing and bunny hopping his new Specialized around a golf course, adorned in Tinkoff-Saxo kit.

Team owner Oleg Tinkov realises the value of communication – something that has helped him to amass a personal fortune of \$1.4billion, according to figures in *Forbes*. Back in March 2014, *Cyclist* interviewed Tinkov at Tirreno-Adriatico and he knew then that Sagan was the man to deliver the Tinkoff brand to a global audience. 'It's not signed yet but there's a big chance that we will [sign him],' the Russian had told us. 'Why not? He's the best rider in the peloton in terms of image, wins and value.'

Rich rewards

Tinkov almost got his man in the autumn of 2013 when he came close to buying Team Cannondale. That didn't come off so, as is the wont of a Russian billionaire, he evolved from main sponsor to owner of the Russian team. Twelve months later he finally had Sagan, the Slovakian securing a reported €4million per annum for three years. Young, handsome, a boy's sense of fun – it seems that Sagan is a mirror image of a young Tinkov. And he, too, understands the importance of communication.

'It's important for everybody – for the team, for me, for people – to deal with the press,' he says. 'It's all part of the process and I'm happy with that.' The perception of Sagan as a 'funster'

is exacerbated by him now living in Monaco, though he emphasises he's 'never been clubbing or to the casino'. I'm unsure whether he says this for my benefit or Orphanidis's, but there's no doubting that despite winning the green jersey for a third time, 2014 was the toughest year of his professional career by his own high standards. His palmares remains devoid of a major Classic victory and, in all, he won 'only' eight times.

'It's not a problem,' says Sagan. 'I have belief in myself.' It could be a problem though, according to sports psychologist Vic Thompson. Thompson has worked with many elite and recreational sportsmen and warns of the dangers of winning too much, too soon. 'If an athlete achieves significant early success, they can receive a lot of positive attention, compliments and comments about how good they are and how great they will become. This can lead to a "softer" approach to training and racing, resulting in sub-par performances.' (See box, below opposite).

'Yes, sometimes training is boring, sometimes good,' retorts Sagan. 'You have good days, bad days, but I'm focused. There's a lot of core

'I've always been very competitive. That's why the training is fine but it has always been about the racing for me'

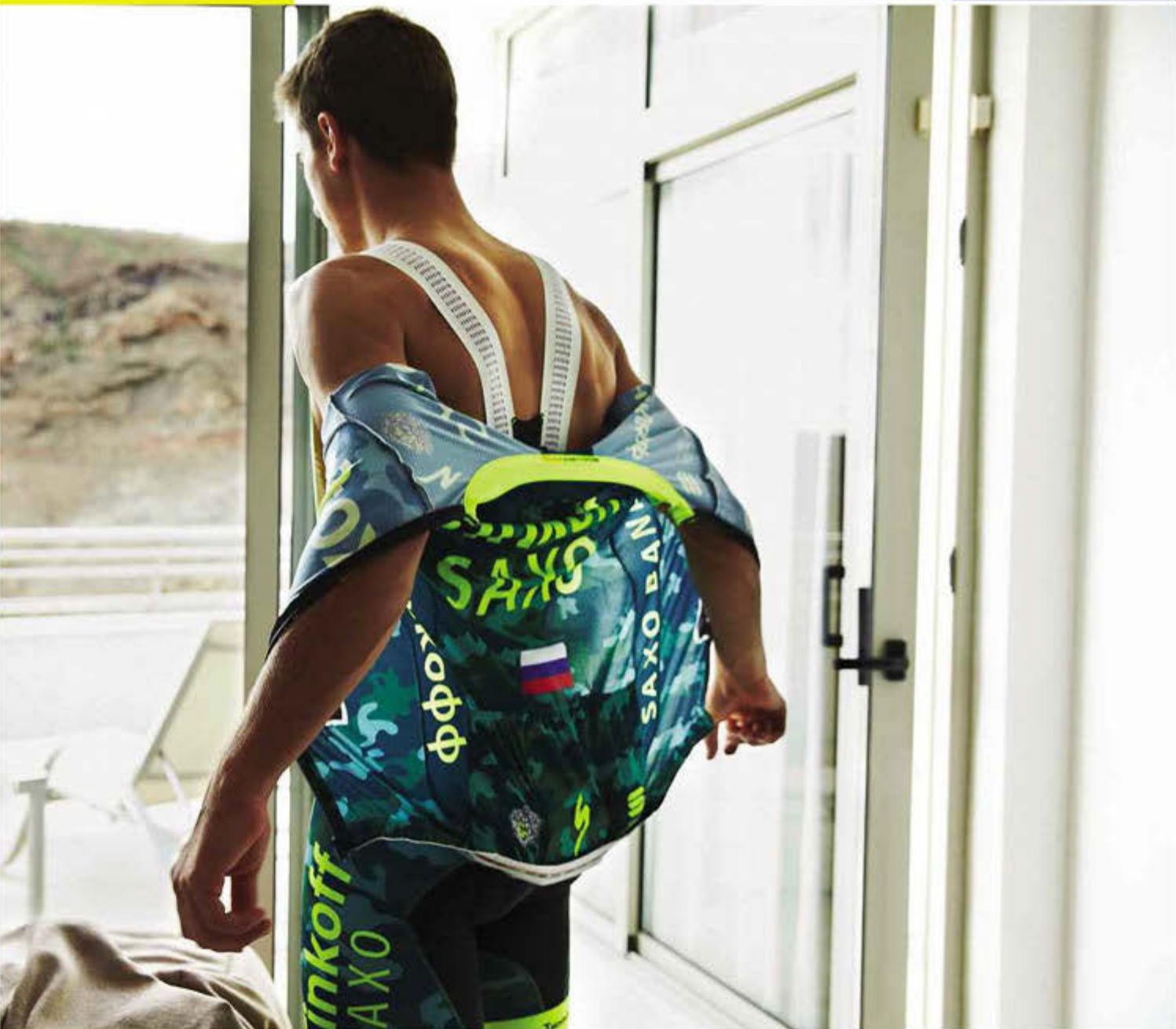
and gym work at this time of year; plenty of bodyweight exercises and a lot of squats. They're very important. I've always been very competitive. That's why the training is fine but it has always been about the racing for me.'

Change for the better

You suspect Sagan's move to Tinkoff-Saxo comes at the right time. Beyond the fiscal remuneration that's up there with Alberto Contador's, he's joined one of the strongest teams on the WorldTour. In 2014, Contador won the Vuelta, the team won two stages of the Tour de France, and Rafal Majka won the King of the Mountains jersey.

'This is a stronger team, yes,' says Sagan. 'There are many strong riders on this team, so I'll have a greater chance. It's also great that [Ivan] Basso's come to the team. I'm very good friends with ▶'





Despite signing in the autumn of 2014, contractual ties meant Sagan had to wait until the turn of the year before slipping into Tinkoff-Saxo's training apparel

TOO MUCH TOO YOUNG?

Could his meteoric rise play against Sagan? He wouldn't be the first...

In his first year for Liquigas in 2010 Sagan won two stages of Paris-Nice, which helped him win the points classification. In 2011 he won 15 times including a stage victory at the Tour de Suisse when he left notable climbers such as Tejay Van Garderen and the Schlecks in his wake. Sagan won 16 times in 2012 before racking up 22 victories in 2013, plus a handful of points classifications. A further 10 second places and five thirds

that year saw him mounting the podium in 36 out of 85 races. This was over multi-stage and one-day events, hills and flats, his versatility drawing praise from legends and contemporaries alike.

'I see myself in Sagan,' said Eddy Merckx. 'Basically it's Sagan versus the rest,' said Matt White, DS at Orica-GreenEdge. 'He's like watching Messi play football,' said Dave Brailsford. 'Sagan is Jedi,' said David Millar.

It's well-meant, but such praise for one so young can affect long-term development. Just look at Damiano Cunego. The Italian burst onto the scene in 2004, winning the Giro d'Italia at just 22. He went on to win four one-day Classics between then and 2008, and then... nothing. Fast-forward to 2015 and he's just left Lampre-Merida to study sports science and race at Continental level.





© Ivan. I've been riding with him since we joined Liquigas.' Several times in 2014 Sagan was left exposed by Cannondale, with little domestique support at the sharp end of races. Exposure shouldn't be an issue in 2015. Sagan will line up with uber-domestique Daniele Bennati and the experienced Michael Rogers, alongside fellow new recruits Pavel Brutt from Katusha and Robert Kiserlovski from Trek, both durable riders who'll offer valuable support. Sagan's brother, Juraj, also joins from Cannondale, and could be the most valuable signing, offering familiarity and trust in Sagan's very public world.

'It's important to have my brother here,' he says. 'When I started on the bike, I always trained with my brother. It's very good to have family with me – very important.'

Mountain to climb

The ink had barely dried on his three-year contract before Sagan and his brother had experienced team bonding Tinkoff style. This year Bjarne Riis dispensed with paintball and raft building, and instead his employees climbed Mount Kilimanjaro. The Dane is notorious for his brutal training camps. In the past, his pupils have driven blindfold, clambered up poles and navigated the frozen waters of Denmark.

Ascending Kilimanjaro, the expedition faced the worst weather conditions seen there in a decade. 'I was OK up until the 5,000m mark,' says Sagan. 'That's when I began to have problems with headaches and balance. At the top I vomited. It was like having a hangover.'

Talking of hangovers, I enquire as to how Sagan's induction ceremony went the night before. The older, wiser Sagan remains tight-lipped about what went on or what was drunk. There'll also be no chance of a celebratory drink at his season opener, the Tour of Qatar, which is followed soon after by the Tour of Oman.

'I was OK up to 5,000m. That's when I began to have problems with headaches and balance. At the top I vomited'

'I'll then race Tirreno-Adriatico [11th March], before heading into the Classics.' For Sagan they will start with Milan-San Remo on 22nd March, before he looks to defend his E3 Harelbeke semi-Classic title [27th March]. Two days later it's Gent-Wevelgem, the 'semi' that remains the biggest one-day win of his career to date (in 2013). 'It all went well that day. I felt good from the moment I woke up,' he recalls. 'And the conditions really suited me with a couple of punchy climbs and miles of flat terrain. And it was cold. So cold.'

It certainly played to Sagan's strengths. Held in freezing conditions, a group of 11 went clear with 60km remaining of a shortened race. With 4km to go, Sagan broke free, going solo to take victory. He has never been allowed to pull away in the big Classics, however, the peloton monitoring his every pedal stroke, every twitch, every intention, with the diligence of an owl watching its prey.

April is the month that will define Sagan's 2015 season. Tinkoff-Saxo's recent Classics palmares is disappointing. That's the reason he's been brought here. 'My favoured victory would be Flanders and then Roubaix. Roubaix is bigger but Flanders is good for my characteristics. ◉

Pro riders get very used to hotel rooms. This time Sagan straps in at Tinkoff's Gran Canarian training camp base at the salubrious Anfi Tauro resort





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‘I know I can do it.’ At only 25 years of age, the Classics are already becoming an albatross around the Slovakian’s neck. Like Raymond Poulidor at the Tour – who finished second three times and third five times – he’s been oh-so-close many times. In 2012 he finished fourth at Milan-San Remo, fifth at Flanders and third at Amstel Gold. A year later, he got another second at San Remo and second at Flanders. In 2014, his best Monument finish was sixth at Paris-Roubaix.

I raise the question of mounting pressure. ‘I’m not riding the races for anyone else [in reference to the media]. For sure I want to win but the pressure comes from me. I want to win but it just hasn’t happened yet.’

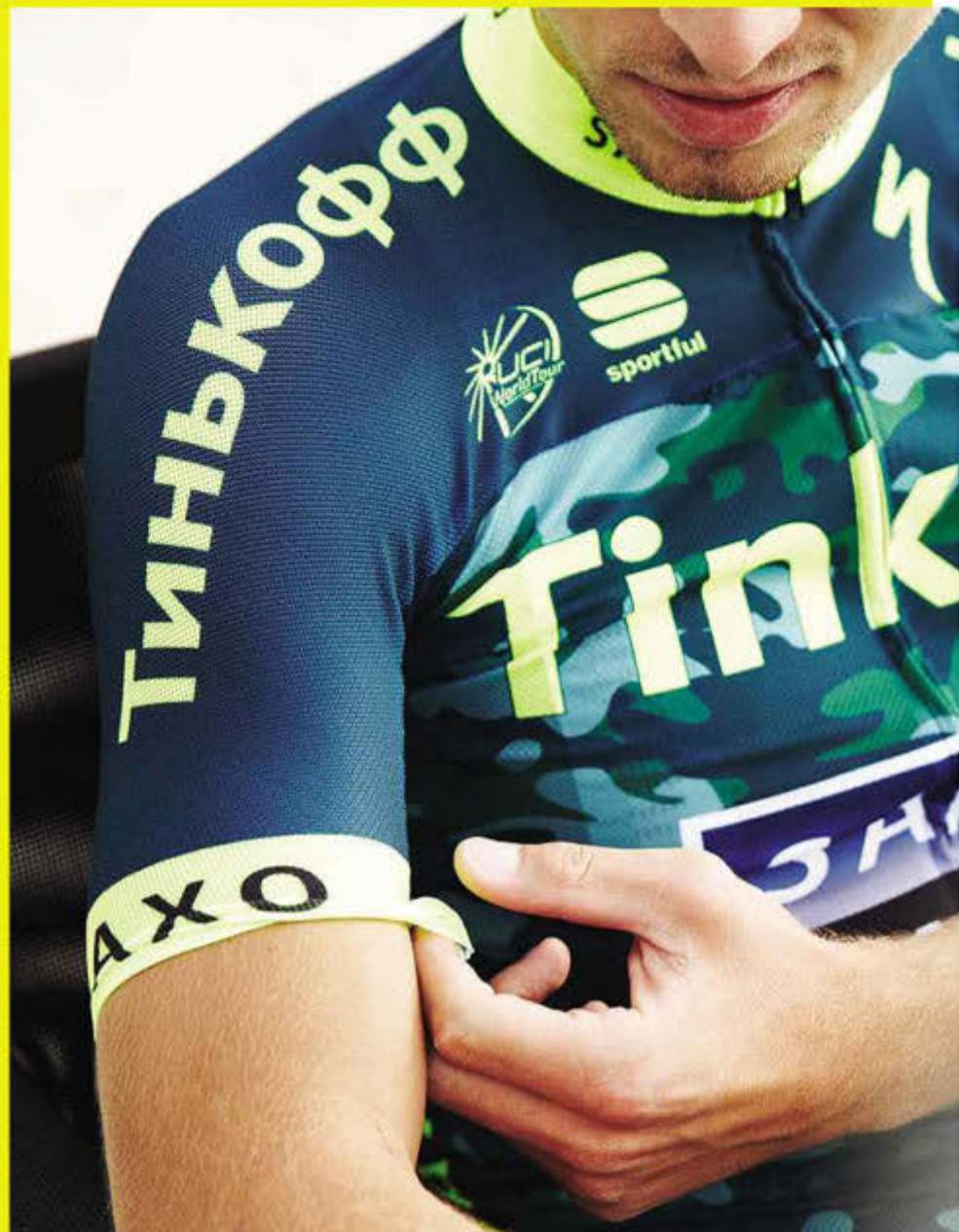
Sagan is now in good hands. Fabian Cancellara joined Team CSC (precursor to Tinkoff-Saxo) in 2006 as a time-triallist. The following four seasons saw Riis turn Cancellara into a one-day specialist. By the time the Swiss moved on to Leopard Trek in 2011, he’d won Paris-Roubaix twice, Milan-San Remo and the Tour of Flanders. Cancellara also didn’t win his first Classic until the age of 26. Tom Boonen was 25, the same age as Sagan. Sean Kelly was 27. Between the three of them they went on to win 23 Classics.

Eyeing the Tour

Sagan will also be looking to win his fourth Tour de France green jersey in a row. Now a disciple of Tinkov and his ‘win everything’ doctrine, he remains confident he can do it despite the team’s priority to dress Contador in yellow. ‘People marked me at the Tour but this team – and me – have the versatility to deliver.’

At the 2014 Tour, Sagan is best remembered for securing seven top-five finishes in a row without registering a victory – an unwanted feat only bettered by Charles Pelissier racking up eight in 1914. In his career, Sagan has ridden 63 stages of the Tour de France, 58 in green. He’s finished 26 times in the top five. It’s an incredible record, but that consistency might not serve him so well at this year’s Tour after ASO confirmed a change to the green jersey points classification for the nine flat stages of the 2015 edition, with the winners collecting 50 points – 20 more than second. On the mountain stages that points difference is just 10. It’s a sign that the organisers want the points jersey to go to stage winners, not just consistent performers.

‘I’m not worried about those changes,’ Sagan tells us. ‘I’m always looking for victories, always ready to put it on the line. I’m proud of my record with the green jersey. And I always like winning. It’s a great motivation.’





'When I was growing up it wasn't all about cycling. I wanted to do all things: be a dancer, an actor, a sumo wrestler...'

SAGAN'S GREATEST HITS

The races that built the Slovakian's reputation

TOUR OF POLAND 2011

Sagan serves notice of his multi-stage prowess by winning the 68th Tour of Poland. Dan Martin holds a three-second lead over Sagan as the riders enter the seventh and final stage, a relatively flat 128km affair that ends in Krakow. A two-second bonus picked up at the intermediate sprint means Sagan only needs to finish third in the stage to take the overall win. He duly obliges, coming second to Marcel Kittel.

TOUR DE FRANCE 2012, STAGE 1 & GREEN JERSEY

In 2012 Sagan wins his first green jersey by the huge margin of 141 points from André Greipel, the Tour debutant setting out his stall on stage one with victory over the 198km route from Liège to Seraing. Five category-four hills and a punchy climb 3km from the end play right into Sagan's hands, before the 22-year-old overtakes Fabian Cancellara and fights off Edvald Boasson Hagen down the final straight.

E3 HARELBEKE 2014

The Slovakian begins his 2014 Flandrian campaign in style, winning the 213km semi-classic. A race punctuated by mechanicals, crashes and aggressive riding sees a group containing Sagan, Geraint Thomas, and OPQS teammates Niki Terpstra and Stijn Vandenbergh, hold off a chase group led by Fabian Cancellara. Vandenbergh attacks three times, but Sagan sails through ahead of Terpstra and Thomas.

Below left: Sagan's body is a patchwork of battle scars. A nasty crash at the 2010 Tour Down Under left him needing 18 stitches

Winning came naturally for Sagan from an early age. He was born in Zilina on 26th January 1990, the youngest of three. His father Lubomir and mother Helena ran a grocery store in the recently dissolved sovereign state of Slovakia. Sagan briefly dabbled with football but, at the age of seven, his parents entered him and Juraj into a race organised by the Salesians and Zilina cycling club. They won their respective age categories, joined the host club, and were soon training and racing regularly on mountain and road bikes.

The brutal winters meant knobbly tyres were more common than slicks. 'I raced a lot on the mountain bike when I was young, and cyclocross,' Sagan says. 'They not only made me strong for the road, but also really helped with handling. You can't hone technique as an adult like you can as a kid. As a kid, it's all about fun.'

Zilina is situated in the north-west of the country and features rugged mountains – the perfect topography for a keen young cyclist to build power and stamina. That is until the snows fall. Then, for Sagan, skis would replace wheels, with winters seeing the young Slovakian skiing, hiking and cross-country skiing, the latter further strengthening his natural engine.

The physical demands of cross-country skiing mean top athletes register VO₂ max figures similar to a horse. (The joint second-highest ever recorded is an astonishing 96ml/kg/min by Norwegian cross-country skiers Espen Harald Bjerke and Bjorn Daehlie. In first is cyclist Oskar Svendsen at 97.5ml/kg/min.) Sagan's mix of cycling and cross-country, supplemented by his favourable genes, created a rider who's equally at home on the sprints as on punchy climbs. It's like he was born to ride.

'That's not the case,' he says. 'When I was growing up it wasn't all about cycling. I wanted to do all things: be a dancer, an actor, sumo wrestler... everything. I had ambition to do something incredible but never talked about becoming a pro cyclist. That changed in 2008.'

That year, cycling chameleon Sagan won the junior mountain bike world championships in Vale di Sole, Italy, followed by second at the junior cyclocross world champs. He also finished second at the junior Paris-Roubaix behind Brit Andrew Fenn, who recently joined Team Sky from Omega Pharma-Quick-Step. The results caught the eye of Continental team Dukla Trencin-Merida. Sagan joined them and, in 2009, he won two stages of the Mazovia Tour. He quickly followed that by signing for Liquigas-Dolomiti, and was racking up victories and plaudits galore. With his celebratory 'running man', 'chicken', 'Hulk' and 'juggler' ◉

► winner's salutes, Sagan stood out from the stoic demeanours of his contemporaries. His joyful sense of humour has captured a huge fanbase. When he pinched a podium girl's bum at the 2012 Flanders, an apology soon followed, but it didn't seem to be a problem for his supporters, with 5,000 Slovaks taking photos of themselves pinching their mates' buttocks. Such 'exuberance' contrasts slightly with his choice of cycling hero. 'When growing up I had lots of idols from sport,' he says. 'From cycling it was Jan Ullrich. He was such a powerful rider. I was always happy to see him do well at the Tour.'

Ullrich grew up in communist East Germany, often coming over as dour. Sagan, on the other hand, is the embodiment of the capitalist dawn: brash and confident. At the age of three his home country, Czechoslovakia, went through a relatively amicable split – so much so it was termed the 'Velvet Divorce' – the result being the Czech Republic and Slovakia. It brought capitalism and, with it, potential rewards.

Now Sagan is aiming to help others benefit from his own success with the launch of the

'I'm confident in my abilities. Very confident. And at the end of the day, it's only bike racing'

'Cycling Academy by Peter Sagan' – a team that includes five Israelis, four Poles, two Slovaks and one Czech rider. 'It's not my team but they use my name. I know the organiser of the project, Ron Baron. If all goes well, maybe in the future we'll open more around the world. Maybe in Africa, South America...'

Battle scars

As the sun sets on our Canarian interview, Sagan looks happy. A bit like when Hooper and Quint compare scars in *Jaws*, Sagan describes his bodily war wounds with an open mix of pain and pride. 'This one on my right hip is from the Sardinian stage of the 2013 Tour. Another one on my wrist is from racing in Italy at U23 level. And this one's real good.' He points to his forearm to reveal a trail of lighter scarred skin against his all-year tan. A crash at the 2010 Tour Down Under left him needing 18 stitches.

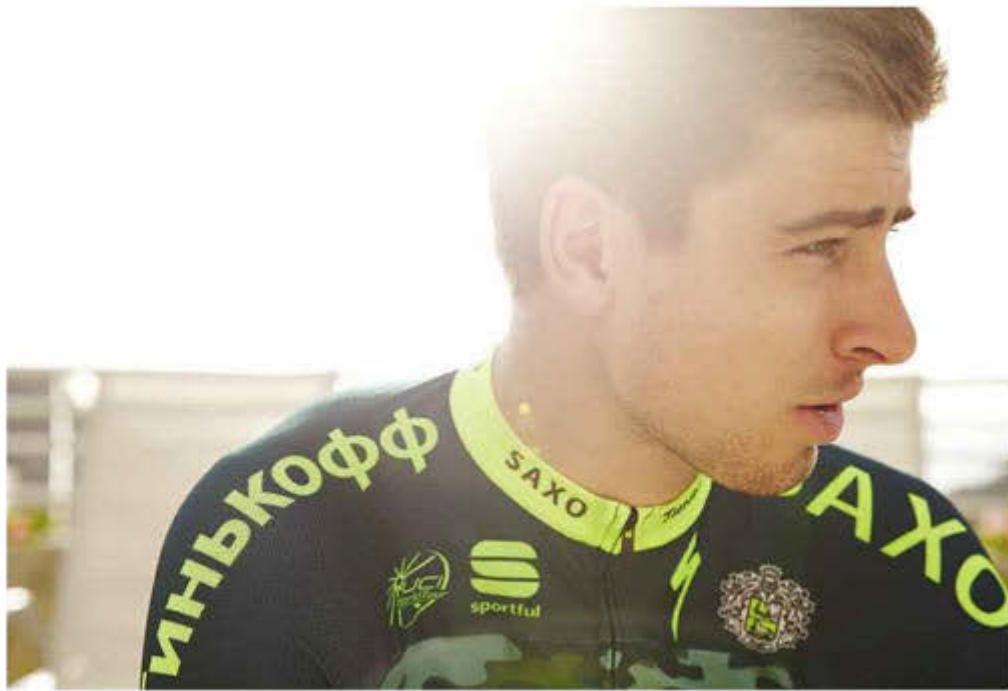
It reminds you how much Sagan has experienced for someone so young. Strip away the history of victories, the near misses and bravado, and you have one of the most naturally gifted cyclists ever to grace the professional road circuit. A rider who still hasn't ruled out 'becoming a GC contender in the near future'. The danger is that his marketability becomes a distraction from the riding; that without a raft of Classics victories, those wheelies and the showboating will be what defines him.

Right now, Sagan claims to be completely unconcerned: 'I'm confident in my abilities,' he says. 'Very confident. And at the end of the day, it's only bike racing.' *

James Witts is the Peter Sagan of the journalistic world – without the bum pinching



In a team featuring Alberto Contador, Rafal Majka, super-domestique Daniele Bennati, Michael Rogers and his own brother Juraj for moral support, Sagan seems in a perfect situation to achieve greatness. In the Spring Classics we will begin to find out if he can...



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Out of the city

Cyclist heads to the Wicklow Mountains south of Dublin to sample the cream of Irish riding

Words **STEVE WESTLAKE** Photography **RICHIE HOPSON**



Capital cities with mountains nearby are charmed locations, and Dublin is one such urban haven. It's great for those who live there, but also highly convenient for the rest of us because it's an easy hop to the well-served airport followed by a quick 30-minute drive from the city centre to prime riding territory.

The hills in question are the Wicklow Mountains, the largest area of continuous high ground in Ireland, formed 420 million years ago by the collision of the North Atlantic and European continental plates. The last ice age did an excellent job of putting the finishing touches to the stunning landscape, with climbs that are tough enough to test any cyclist's mettle.

The climate, of course, is typically Irish and

As soon as we get into the saddle, we immediately hit a sharp climb out of the Glencree valley

Lighting the Wick

Follow our trail into the heart of the National Park

Our route (which is at tinyurl.com/pdwsfx5) starts with a dash south from Enniskerry on the R760. Then take the R755 to Laragh. From there turn right onto the R115 (the Old Military Road) and follow it all the way up to Sally Gap. Take a sharp right onto the R759 and descend to Lough Tay, then climb with the lake on your right and descend again back to the R755. We then turned right to our lunch spot in Roundwood, or you can turn left and backtrack on the R755 and R760 to Enniskerry.



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described as having 'mild, damp summers and cool, wet winters'. *Cyclist* is visiting in mid-September however, and miraculously it looks like we're being treated to a warm and sunny autumn day. Guiding me and my riding partner Dan to the best riding roads are Paul (Irish) and Raul (Mexican/Irish), who both work at Harry's Bikes in Dublin city centre. We meet them at Poppies Cafe in Enniskerry for coffee and pre-ride checks.

Out of the gate

Enniskerry is described as the 'gateway to Wicklow, the garden of Ireland', which sounds like an ideal place for us to clip in. What's less idyllic from a warm-up point of view is the village's location at the bottom of the Glencree valley, cut deep into the Wicklow granite by the River Dargle (an onomatopoei, surely). The location means that we immediately hit a sharp climb out of the valley, which is given extra spice by Paul who's asking me about working at *Cyclist*. I try to maintain a semblance of composure while speaking in staccato sentences between huge, barely disguised in-breaths.

I try to maintain a semblance of composure while speaking in staccato sentences between huge, barely disguised in-breaths



The rider's ride

Forme Thorpe Elite, £2,999, formebikes.co.uk

The Thorpe Elite follows Forme's ethos of creating high-spec bikes that cater for the special demands of the British market. Many of its bikes are named after landmarks in the Peak District (Thorpe, Axe Edge, Blackrocks), where the bikes are designed and tested. On this ride over some varied Irish roads, the bike was precise and responsive - with any subtle shift in bodyweight producing a direct and proportional reaction. Aimed at the racer or serious sportive rider, and made from Torayca 700 carbon, the stiff frame and light weight produced an involving ride. It certainly made me want to ride long and ride fast.

Paul is a former Irish National mountain bike and cyclocross champion and has now turned his hand to winning local races in these parts, so it only seems fair that as soon as the opportunity arises I flip the conversation and get him to do the talking. We pass the turning for the Powerscourt Estate (which boasts award-winning gardens and Ireland's highest waterfall in its grounds) safe in the knowledge that more expansive landscapes await us, and we won't be missing out on waterfalls on this ride either.

After 4km, and fully warmed up by the immediate climbing, we start the descent to Ballybawn Cottages and catch our first glimpse of what the Wicklow mountains have to offer - in the shape of the Great Sugar Loaf mountain. Although at 501m high it falls more than 400m short of being Wicklow's highest (Lugnaquilla, 925m), it's still classed as one of the 'Marilyns' - meaning it has a geological 'prominence' from the surrounding landscape of 150m or more. (The name is a pun on the Scottish Munros).

At the bottom of our short descent we turn right onto the R755 to continue our route south





Left, far left, above:
The Old Military Road
towards Sally Gap
is perfect cycling
territory. This is
a rare moment
of level ground

towards Roundwood and Laragh. We begin to climb and traverse up the flanks of the Great Sugar Loaf, although from this side its famous prominence is largely hidden by the hedgerows to our left. With the climb done we cross a short plateau and fall into a two-by-two chaingang for the long, gentle descent to Laragh, passing through Roundwood and the Coach House pub on our left, which we will return to for lunch in 50km time.

It's a chance to spin out our legs, which serves as a welcome respite after the sharp start to the ride. I'm still side-by-side with Paul, but I can hear the Mexican/Irish lilt of Raul telling Dan about his life as a policeman in Mexico, and how he decided to make the move to Dublin because of the dangers of that occupation at home.

We enter Laragh and stop to regroup outside the Glendalough Fayre café, but decide to press on rather than indulge in another coffee. Most visitors to this area would be here to visit Glendalough itself (the Glen of Two Lakes) and inspect one of Ireland's prime tourist attractions – a monastic settlement that was the abode of St

◀ Kevin, an animal-friendly ascetic hermit born around 500AD and an important figure in Ireland's Christian heritage. There are many tales about St Kevin, perhaps the most famous being how when a blackbird landed in his outstretched palm as he stood in one of the two lakes, he remained completely still for the weeks it took the bird to build a nest there, lay its eggs and fledge the chicks. Only when the nest was empty again did he move. In 1996 the poet Seamus Heaney wrote a poem about it called 'St Kevin And The Blackbird'. Another less romantic story about St Kevin is that to defend his piety he once drowned a woman who tried to seduce him, also in one of the lakes in his Glen.

'Michelle Obama and her daughters visited Glendalough when they were over in 2013 for the presidential visit to Ireland,' says Raul. 'I was out riding around here that day and it took quite a while for all the security convoy to pass. But we're unlikely to see much traffic from now on.'

Up and at them

Our route out of Laragh takes us into the heart of the Wicklow Mountains National Park on the quiet Old Military Road – built in the wake of the 1798 rebellion to help the British Army to put down the rebels hiding in the mountains. No road around here stays flat for long and we're soon into another climb. As we clear the trees of the valley we're treated to the expansive sight of the asphalt stretching out ahead of us in a long gentle left-to-right arc as it follows the hillside on the right. Meanwhile the Glenmacnass waterfall reveals itself over to the left, tumbling



A less romantic story about St Kevin is that to defend his piety he once drowned a woman who tried to seduce him, in one of the lakes in his Glen



for a drop of 80m in a wide, shallow cascade over the smoothed granite that forms the bedrock of the Wicklow mountains.

Past the waterfall and the climb continues. To our left now is the dark green of a Scots pine plantation which then gives way to the kind of expansive moorland view that will typify the surroundings we're going to revel in for the next 30km.

We pass below the Carrigshouk peak to our left (572m) and through another Scots pine plantation as the deserted single-track road winds lazily ahead, climbing more gently now. Then after a few more kilometres we find ourselves in a beautiful wilderness. There's not a tree in sight for the whole, vast 360° panorama and, perhaps like all the most impressive

Left: The landscape of the Wicklow Mountains is typified by Scots pine, heather, gorse and testing climbs



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It's the kind of place that could be as bleak and foreboding as it is beautiful, given different conditions



► landscapes, it's the kind of place that could be as bleak and foreboding as it is beautiful, given different conditions. Paul confirms my thoughts. 'I've been up here on plenty of training rides when it's been zero degrees and with winds that blow you off your bike,' he says. 'To be honest, you don't often see it as nice as this.' So we thank our lucky stars and bask in the endless view as we roll along the road, which levels out and draws a faint line in the moorland before disappearing all the way over the horizon.

'It's like something from a postcard,' says Dan with a big smile. 'But there's a kind of brutality to the shape of the landscape – like it's been savaged by rapacious winds, which have torn at the peaty soil and stripped trees from the hilltops.' Nicely put.

We're heading towards Sally Gap, a four-road junction in the heart of the highest part of the National Park. I inwardly wonder who Sally is or was, but it turns out the name is likely to come



Left: The sand at the head of Lough Tay was imported from Italy by the Guinness family. Cheers for that

such a dark shade of brown that the Guinness family that owns the land imported white sand from Italy to create a creamy head on the lake. It's fed by the pleasingly named Cloghoge river, and then drains into Lough Dan, which we can see glinting in the distance to our right.

The road climbs steeply with Lough Tay down below us and a low dry-stone wall allows for uninterrupted viewing pleasure. The only distraction on the climb is a succession of classic cars coming down the hill as we toil upwards, and we hope that their ancient brakes are working and the drivers aren't too distracted by the spectacular views from the narrow road. We could hardly blame them if they were.

Much of the Luggala Estate land we're passing through is owned by the Guinness family, famous for the brewing empire (see panel, right). The estate was used in the filming of *Braveheart* and *Excalibur*, and it's easy to see why with its expansive and rugged demeanour. It also featured in the 1974 sci-fi classic, *Zarzoz*, starring Sean Connery in only his second post-Bond role. (I hadn't heard of it either).

As we pant to the summit of the climb we take a last lingering glance at Guinness lake before starting a 4km descent back to the R755. A right turn and 5km later we arrive once again in Roundwood for our belated lunch stop at the Coach House.

With full stomachs and spirits buoyed by the knowledge that we've seen the Wicklow mountains at their absolute best, we retrace

from the original Irish name, *Bhearna Bhealach Sailearnáin* which is said to translate snappily as 'Road through the gap where the willows are', with the Sally part simply being a short anglicised version of *Sailearnáin*.

From Sally Gap it's almost perfect high-speed descending territory with only gentle bends and enough slope to make pedalling futile, but not so steep that we have to use the brakes. We haven't seen a car for 10km or more. After 2km of exhilarating downhill on increasingly bumpy roads we plunge past some more Scots pine and then brake hard for a right flick over a stone bridge and simultaneously bounce out of the saddle for a punchy climb that will take us to yet another spectacular view point.

The cream on top

Lough Tay – or 'Guinness lake' – lies between the Djouce and Luggala mountains (Luggala is also known locally as 'Fancy mountain'). The water is

One for the road

No trip to Ireland is complete without a pint of Guinness

The Guinness brewing empire was founded in 1759 when Arthur Guinness signed a forward-thinking 9,000-year lease on the empty St James Gate Brewery in Dublin. Little could he have dreamt that 250 years later, 1.5 billion pints of the dark potion that bears his name would be sold worldwide per year, and global leaders (including Barack Obama in 2013 and the Queen in 2012) would queue up for photo opportunities with the brand with the harp logo.

That iconic emblem is based on a 14th century harp, which still exists in a Dublin museum, and was first emblazoned on Guinness bottles in 1862, and trademarked in 1876. This trademark meant that when the Irish Free State Government wanted to use the same symbol on its currency in 1922, it had to reverse the harp so that it appeared the other way around to Guinness's.

Fittingly, Guinness's first spin-off lager was called Harp, but when the IRA took its bombing campaign to mainland Britain in the 1980s, the company reputedly considered dropping the harp logo because of its Republican connotations.





Paul lets loose for the first time and disappears at disconcerting speed into the distance

our steps north to our starting point, nodding to the Great Sugar Loaf, on our right this time, as we pass. On the final climbs to Enniskerry Paul lets loose for the first time today and disappears at disconcerting speed into the distance as Dan, Raul and I start to feel the cumulative effects of the challenging Wicklow topology.

Enniskerry is teeming with classic cars as we re-enter the village and we pick our way past tweeded folk with elaborate moustaches back to Poppies, load up the car and make the short hop from the mountains to our Dublin hotel, where, of course, a few pints of Guinness await. It doesn't taste the same on the mainland, you know... *

Steve Westlake is beer correspondent for Cyclist magazine, and has occasionally been known to take his work home with him

Do it yourself...

Travel

We flew with Ryanair from London Gatwick to Dublin, but flights are available from loads of places. Ryanair charges £50 for the bike on top of the ticket price. It was a 25-minute drive from the centre of Dublin to our starting point in Enniskerry.

Accommodation

We stayed at Dublin's Royal Marine Hotel (royalmarine.ie), which overlooks the harbour and is within ambling distance of Dublin's array of hospitality options.

Thanks

It's true what they say about Irish hospitality. Everyone we met was super-friendly and accommodating. Special thanks to Paul O'Reilly and Raul Crenier from Harry's Bikes for guiding us around the route, and to Frank Moore for driving Richie the photographer. Also to Failte Ireland, the National Tourism Development Authority and Tourism Ireland (ireland.com), and to Ikenna Lewis-Miller, Olivia Dick and Abby Kidd for helping with arrangements.





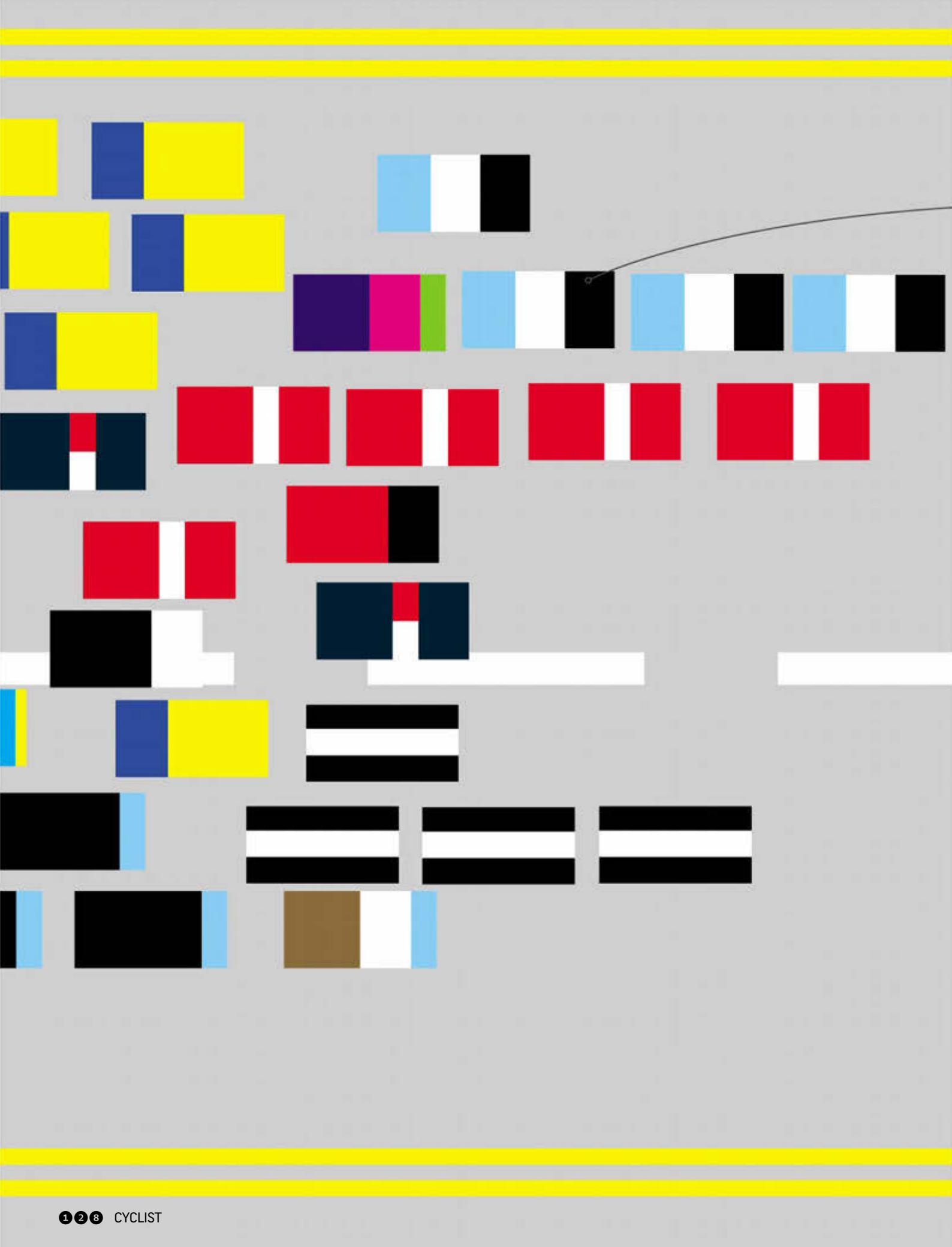
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HOW TO WIN A BIKE RACE

Victory doesn't always go to the rider with the strongest legs. *Cyclist* looks at how strategy, gamesmanship and gall can all affect the eventual outcome

Words **FELIX LOWE** Illustrations **ROB MILTON**



Nicolas Roche is recalling the audacious move his old Tinkoff-Saxo team sprung in the 2013 Tour de France: 'Many times you dream of such a thing, but it rarely comes together like that.' On stage 13, the peloton was split into small groups by the strong crosswinds of the Loire, and yellow jersey-holder Chris Froome of Team Sky was left stranded without support and eventually lost more than a minute to rival Alberto Contador after his Tinkoff-Saxo squad managed to pull off a rare team breakaway.

'We'd been told the wind had eased and so the peloton was not prepared for it,' says Roche. The initial damage had been done by the Omega Pharma team of eventual stage winner Mark Cavendish, dividing the peloton with more than 100km remaining. Sprinters and GC men were distanced. Other teams sniffed blood. When the gusts returned, Froome suddenly appeared vulnerable. With 35km remaining, all the ingredients were

there for the Tinkoff-Saxo team to execute its master plan.

'There was another split and I saw that teams were caught out,' Roche, now riding alongside Froome at Team Sky, tells *Cyclist*. 'I had a chat with Michael [Rogers]. He was up for it. We stuck really close. Then Michael said, "Go!" and that was that. It was a huge team effort. It doesn't happen often that you have a break of a dozen riders with six from one team, but the circumstances were just perfect.'

Such a scenario rarely plays out precisely because it's unusual that everything falls into place so well. Had stage 13 of that Tour been a one-day Classic, Saxo's strategy would have been considered highly flawed – Contador finished only seventh – but as part of a three-week narrative, it unexpectedly became the most compelling stage of the entire race.

Tactically, teams approach the one-day Classics and multi-day Tours differently, but one thing that the Tinkoff-Saxo move of stage 13 showed is that, regardless of the type of event, racing is often a numbers game. The

Above: Nearing the end of a mountaintop finish, the team leader may only have the help of one or two domestiques. Soon they'll be on their own

Previous pages: As the run-in to the final sprint unfolds, dicing for position is paramount. Ground is hard-fought and defended by the lead out trains that shepherd their teams' sprinters to the line

team with the most riders in play gives itself the best chance of winning.

Look at last year's Paris-Roubaix. The 2014 event was won by Omega Pharma-Quick-Step's Niki Terpstra, but had he failed in his attempt, he had two other team-mates in the final break of 11 riders, including the four-time winner Tom Boonen.

In a similar vein, Leopard-Trek used strength in numbers to devastating effect on stage 18 of the 2011 Tour de France. It was a long 200km mountain stage, finishing at the top of the Galibier, and team leader Andy Schleck staged a daring breakaway with 60km still to go. Fortunately, the team had the foresight to place riders in breaks further up the road, who were used to pace Schleck away from the chasing bunch until the Luxembourger could eventually solo to victory at the mountaintop finish. It was a move concocted in the Leopard-Trek team bus that very morning.

In the same year, at Paris-Roubaix, Leopard-Trek were this time victims of strength-in-numbers tactics at the hands of Garmin-Cervélo. Fabian Cancellara, who had won at Roubaix the previous year in 2010, was again favourite to win for Leopard-Trek, but Garmin used its strongest rider, Thor Hushovd, to shadow his every move, while sending Johan Vansummeren up the road on what looked like a futile breakaway. Cancellara, unwilling to tow Hushovd all the way to the finish, eventually gave up racing altogether, leaving the Belgian Vansummeren to take the biggest win of his career.

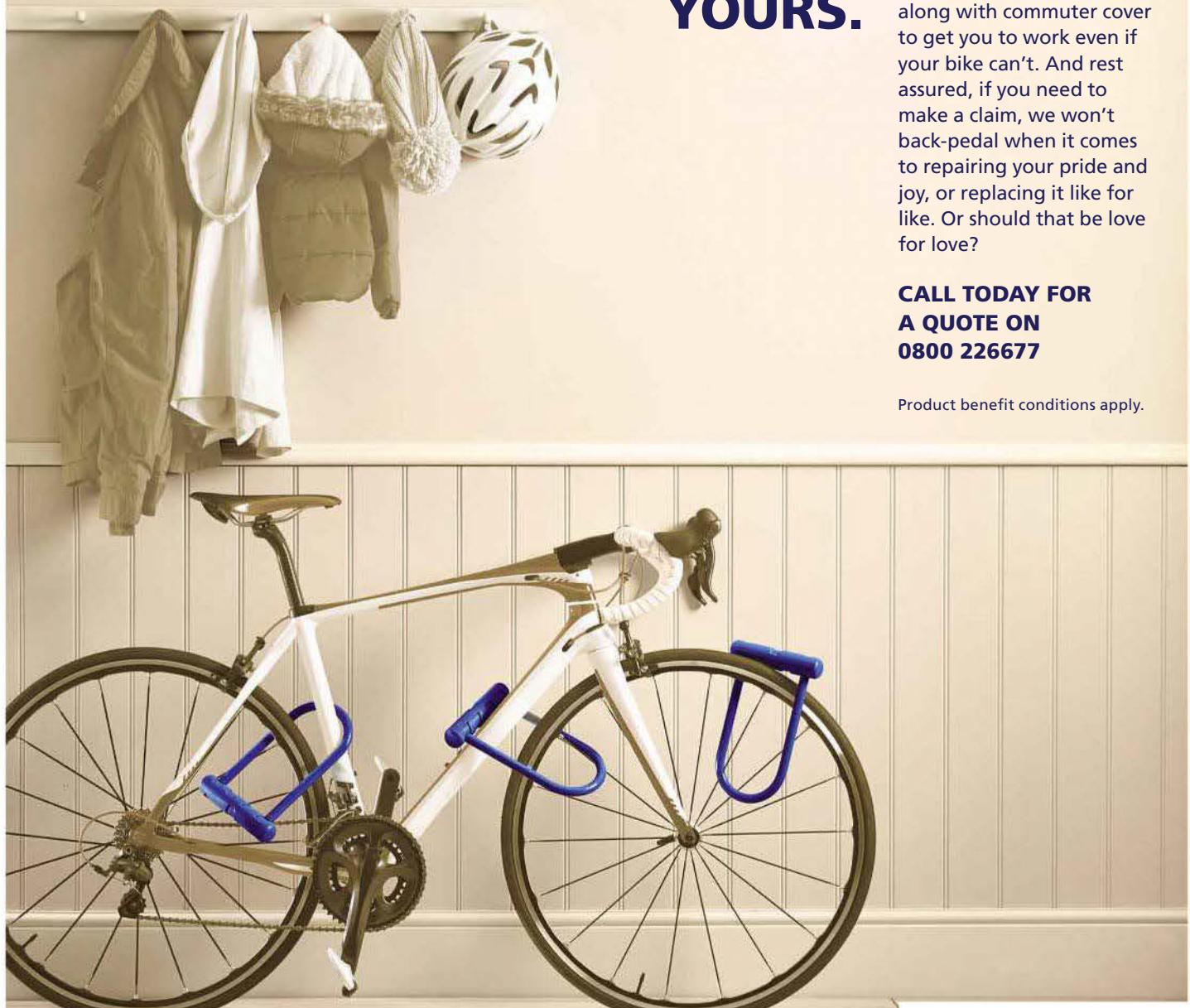
'Garmin may not be the most successful team – nor do they have the best riders – but they've pulled a few rabbits out of their hats with great tactics,' says BBC and Eurosport commentator Rob Hatch.

As well as Vansummeren's Paris-Roubaix victory, Garmin can boast tactical wins for Ryder Hesjedal at the 2012 Giro d'Italia and Dan Martin at the 2013 Liège-Bastogne-Liège.

'I really liked how Garmin kept Martin fresh while using Hesjedal to agitate, break clear and then maintain the pace in Liège. Not

'Despite not having the best riders, Garmin have pulled a few rabbits out of their hats with great tactics'

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‘especially complicated, but well executed – as the most effective performances generally are,’ says Cosmo ‘Cyclocosm’ Catalano, whose *How The Race Was Won* videos have become online staples for fans.

So, it might seem that race wins are concocted by the team managers who can best use the resources at their disposal, and who simply yell instructions down the team radios. But it’s not always that simple.

Grand masters

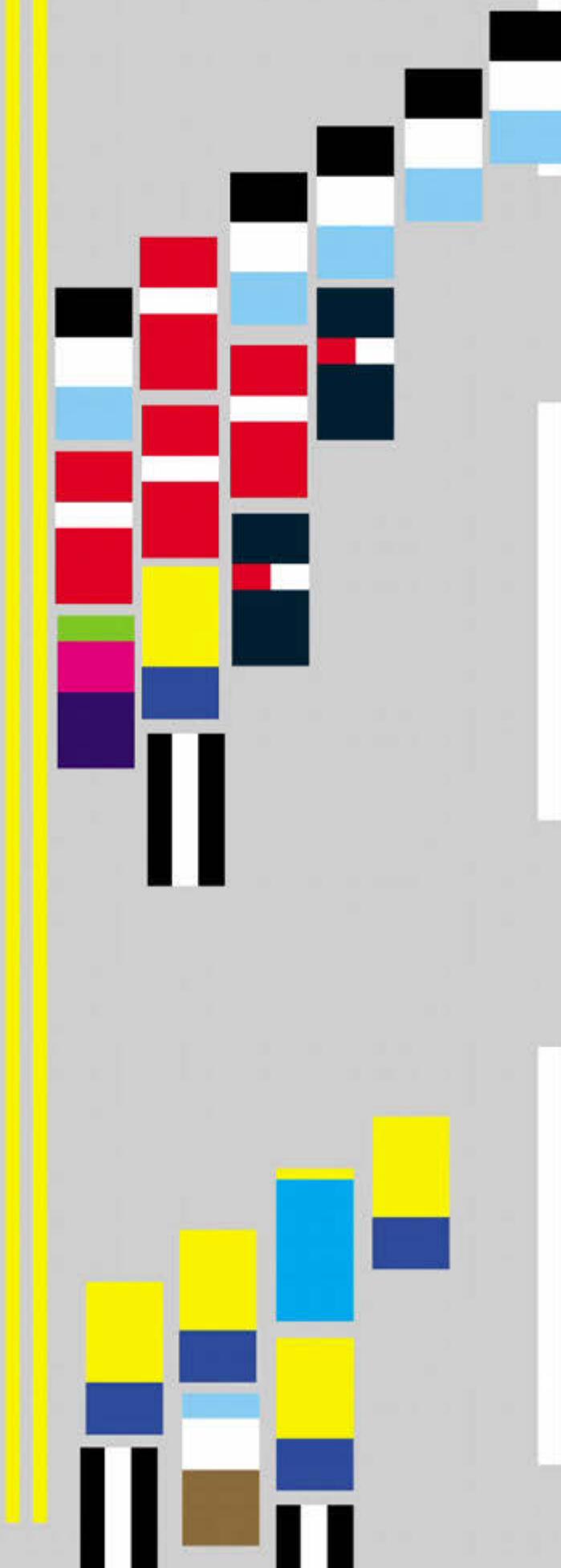
‘Riders have to make a lot of snap decisions themselves. There’s only so much that a DS can actually do, even with radios,’ says former British rider Tom Southam, now *directeur sportif* at Australian Pro-Continental outfit Drapac Professional Cycling, who race primarily in EuropeTour events where radios are banned. Radio’s detractors argue that earpieces reduce riders to the mere playthings of their masters – pawns in a game of cycling chess where the man behind the steering wheel of the team car is, well, queen.

Like Southam, Catalano disagrees: ‘There’s only so much they can do squinting at a tiny TV and yelling into the radio. The comparisons to chess and poker or even playing video games are way off the mark.’

The truth is that there’s more ad-libbing in a bike race than in a whole series of *Curb Your Enthusiasm*. If a rider is physically incapable then even the Danish directives of someone as vocal as Tinkoff-Saxo team manager Bjarne Riis will go unanswered.

‘We’re not robots simply carrying out instructions from the team car,’ says Roche. ‘Sometimes moves work, sometimes they don’t. It’s really hard to pull off a plan – but that’s the human element of cycling, what keeps it unpredictable and a joy for everyone involved in the sport.’

That sporting directors play a substantial role is undeniable, argues Catalano, ‘but it’s more in knowing their riders’ abilities, putting them in positions where they’ll work best, and concisely getting them the race information they need to hear.’ Riis may be hailed as a strategic colossus, but Catalano struggles to recall ‘any



Strong winds can shake up the structure of the peloton as riders seek shelter at the hip of the rider in front, instead of behind, causing echelons to form

moments where, by force of personal genius, he barked a series of brilliant orders that won the day'.

Dangerous moves

Sometimes the best a *directeur sportif* can do is to take a gamble on a kamikaze tactic and hope that it works out for the best. When Charly Wegelius (now DS at Cannondale-Garmin) was an amateur at Jean-René Bernaudeau's Vendée-U development squad, he recalls that the finale of a key race featured a steep descent culminating in a sharp turn ahead of a ramp to the finish. On a recce, Bernaudeau ordered his riders not to brake before the turn. One crashed, but the others learned how to do it. Come the race, they used the tactic to secure the win.

More mainstream an example is Contador's game-changing stage 17 victory in the 2012 Vuelta. Attacking an isolated Joaquim Rodriguez on a transitional hilly stage when he least

Roche. Flexibility and adaptability reign supreme. 'Sometimes you try things with permission and sometimes with instinct,' he says. For while strategies provide structure, it's reacting to circumstances that makes the difference. 'Sticking to a plan doesn't mean adhering to a very strict schedule,' explains Southam.

'From my point of view,' Catalano chips in, 'the best strategies are almost always simple – "Let's get Simon Gerrans to the finish in the lead group" – and most of the tactical adjustments that do happen are in response to how things play out.' It's apt that Catalano should mention Gerrans, because the Australian's strategy segues quite nicely to another key aspect of tactics: fair play.

It's just not cricket

Orica-GreenEdge's Simon Gerrans split opinion after sandbagging Fabian Cancellara down the Poggio before out-sprinting the Swiss powerhouse

to respond. While it's not against the rules, it is frowned upon by riders and fans alike, and is generally deemed to be against the 'spirit' of the sport.

In the 1990 Tour, Italian pro Claudio Chiappucci violated cycling's unwritten rules by attacking eventual winner Greg LeMond when the American had punctured. And who can forget the 'Chaingate' incident in 2010 when Alberto Contador capitalised on Andy Schleck's misfortune. Schleck was wearing yellow when he slipped his chain during an ascent of Port de Balès, and rather than wait, Contador attacked and made it to the line 39 seconds ahead of his rival. It was a breach of etiquette and all the more significant when Contador went on to win the Tour by a margin of 39 seconds (although he was later stripped of the title for a doping offence).

'There was a big fuss when Nairo Quintana attacked during the neutralised descent of the Stelvio in the [2014] Giro, but everyone's forgotten it now. Generally, it's the bunch that calls it. There's no way of regulating fair play, which is one of the main appeals of the sport,' says Roche, whose father, Stephen, famously attacked yellow jersey Jean-François Bernard in the feed zone as part of a plan with Charly Mottet during his victorious 1987 Tour.

Breaking away

It's this same whimsical notion of fair play that calls a truce while the *maillot jaune* stops for a pee. These 'nature breaks' usually occur en masse within the peloton, and often coincide with the pack reaching consensus over the composition of a breakaway.

Forming a break can happen in the blink of an eye in the opening kilometre. During key stages, however, it can be a political, fraught affair – the result of a series of hard, sustained and often foiled efforts with 200km still left to ride. Why? Because the stage win is rarely the objective for a break, even if, confusingly, breaking away offers the only realistic chance of success for 80 per cent of the pack.

Cycling is all about saving energy. A rider ahead allows his team-mates

Strategies give structure, but it's reacting to circumstances that makes the difference

expected it, Contador used numerous Saxon domestiques placed in the break – plus called on his friendship with old Astana team-mate Paolo Tiralongo – en route to seizing the *maillot rojo* from the shoulders of his shell-shocked compatriot. Although Contador admitted this 'kamikaze' attack was 'absolute madness', DS Bradley McGee had actually identified the exact spot for the Spaniard to launch his attack. Watched retrospectively, the stage is a strategic tour de force – right down to Tinkoff-Saxo team-mate Jesús Hernández deadweighting a forlorn Rodriguez up the final climb.

Granted, textbook assaults of such beauty don't always come off. 'Races rarely go according to plan and sometimes you have to resort to plan D. This could be something thought up in the car, by the road captain or a rider on his own,' says

to win Milan-San Remo in 2012. Sure, sitting on Cancellara's wheel and leaving his rival to do all the work before nipping past in the last few metres was sneaky, but the wily opportunist combined patience, timing, a bit of bluff and a cool head to beat clearly the stronger rider.

Similarly, Norwegian rider Thor Hushovd was hounded for supposedly not respecting his rainbow jersey when he refused to attack Cancellara at the 2011 Paris-Roubaix. Garmin's team manager Jonathan Vaughters even said sorry to Cancellara's Leopard-Trek manager, yet Brian Nygaard admitted there was no need for Garmin to apologise.

Wheelsucking may be seen as ungentlemanly, but it's effective, and is generally considered a legitimate tactic by most riders. An altogether more contentious issue is attacking a rival when they are not in a position



to rest – they don't have to lead the chase because if the break stays away they already have a stake in the finale, offering security in a sport that breeds unpredictability. The exception is for weaker, wildcard teams, for whom having a rider in the break is often more about giving their sponsors some airtime rather than a genuine attempt at a race win. Whatever the reasons, having riders up the road – even ones from rival teams – tends to suit the vast majority of the pack. The hard bit for the chasing peloton is controlling that breakaway.

A standard chase involves one or two teams combining with five or six riders on the front sharing the load. Reel in the break early and the threat of counter attacks comes into play; too late and your sprinter will be left fighting for scraps. Great Britain's successful policing of the peloton during the World Championships in Copenhagen in 2011 is the template

here, paving the way as it did for Mark Cavendish's historic win. 'We put a plan together and it's been three years in the making,' said Cavendish after a victory so complete it inspired the book *Project Rainbow*.

To the viewer it may look as if, once the breakaway has formed, the peloton merely has to cruise along at a steady pace for a couple of hours, before reeling in the break in time for the final bunch sprint. But according to Nicolas Roche, those couple of hours can be the most taxing of the race. 'Riding in a big bunch is very stressful,' he says. 'It's all about tactics, positioning, conserving energy and protecting your team-mates.' Teams are constantly looking ahead to flashpoints – sprints, climbs, tight corners – and will jostle for position to protect their assets while disrupting rivals.

On flat stages, the idea is to arrive in the final 10km with your sprinter

When a breakaway forms, teams with the most to lose will deploy their strong riders on the front to limit any time loss. It's up to the riders in the break to decide how much to work together to gain an advantage

in prime position, and this is why so many teams now aim to develop strong lead out trains. In the final few kilometres, a powerful rider keeps the speed high to discourage any solo breakaways from rival teams. When he burns out, a team-mate takes over and the pace lifts again, and so on until the final 50–100 metres when the sprinters go head to head.

A successful lead out train requires strength in numbers, but it is also a battle of attrition where staying at the front can come down to opportunism and a certain amount of bullying.

While being in awe of more illustrious colleagues is entirely understandable, smaller teams can find it stifling. 'It took me a good three days of reminding the guys that they had every right to be riding at the front before they committed to it,' says Tom Southam when recalling this year's Tour Down Under, the season's Australian curtain raiser.

Southam's words didn't fall on deaf ears. On the last day of the race, Drapac's Belgian sprinter Wouter Wippert triumphed in the streets of Adelaide. Victory didn't surprise his DS: 'We had a game plan to try and win that stage from as early as November,' Southam says. A crash involving Marcel Kittel helped, but 'little things like keeping focused and making sure Wouter could save energy at every opportunity' also helped. As with all the best plans, it was simple and relied on riders pre-empting scenarios and adapting accordingly.

There is no set blueprint for how to win a race, but as Southam says, 'If we don't get the result and my riders have done all I've asked them, I have to be accountable for poor tactics.'

Felix Lowe is tactically masterful on a bike. He just doesn't ride very fast

WHEN IT ALL GOES WRONG

Three high-profile cases of tactics turning sour

Team GB's 2012 Olympic Road Race

Trying to control the race from the start, Team GB were never far from the front, but they simply wore themselves out and came the final decisive move the team had no response. Great British hope Mark Cavendish crossed the line in a lowly 29th position.

Brailsford's 2014 Tour de France

When your team includes the defending champion, it's easy to see why you'd back that horse all the way to the line. But it's no good if the horse doesn't make the line, as Dave Brailsford found in last year's TdF when Chris Froome's abandonment left Sky with no plan B.

World Championships, Tuscany, 2013

At 272km long, and in heavy rain, this race was a brute. Two Spaniards, Joaquim Rodriguez and Alejandro Valverde, and Portuguese Rui Costa were vying for the win, but the Spaniards failed to work together and Costa took the rainbow bands.



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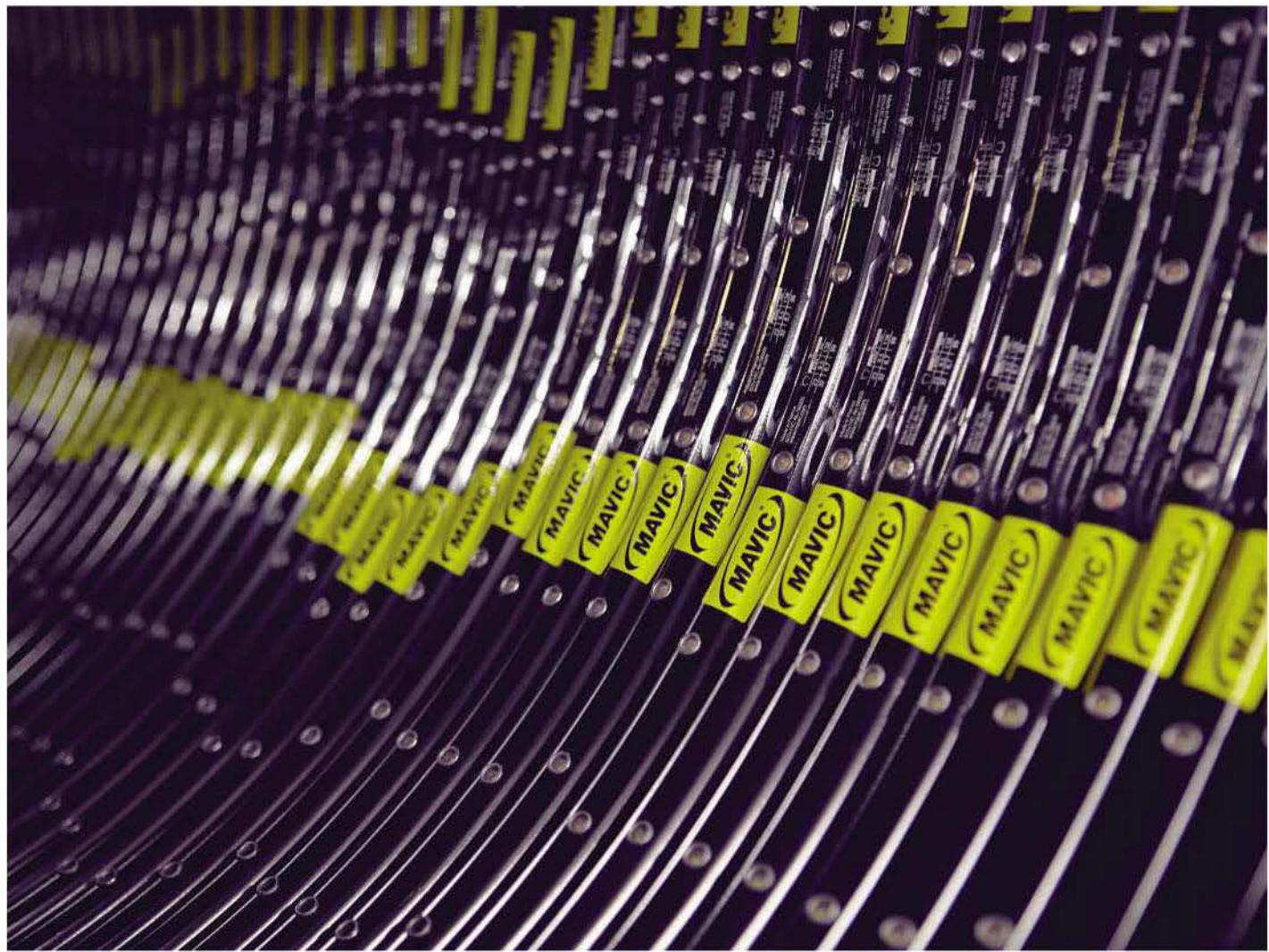
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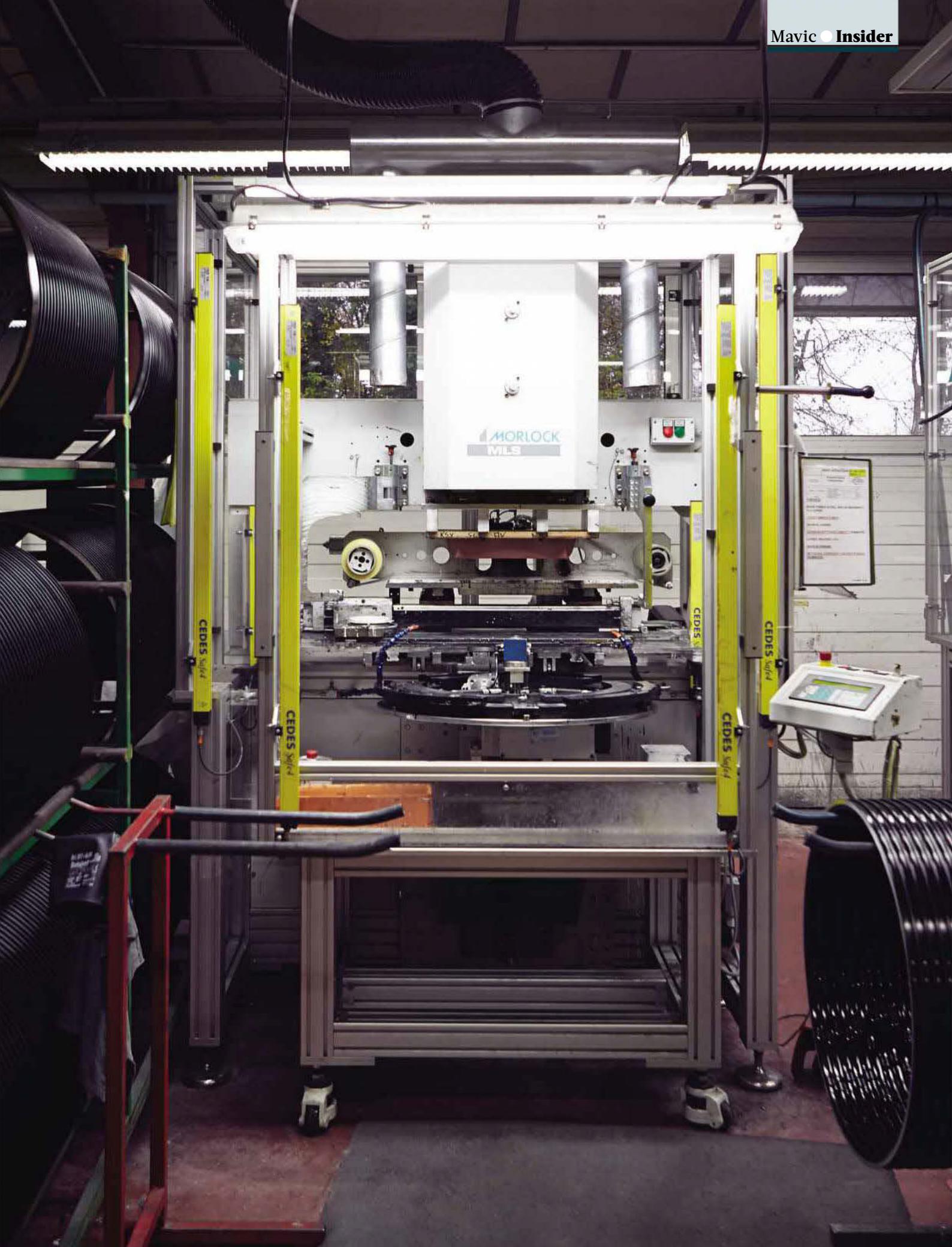


MAVIC MYSTERY TOUR

Mavic has been one of the biggest names in cycling for over 125 years and is still trying to reinvent the wheel. Just don't expect it to reveal its secrets easily...

Words **JAMES WITTS** Photography **FRED MACGREGOR**





M

avic is as much as part of the Tour de France as trident-wielding devils, indignant gendarmerie and Dutch fans on Alpe d'Huez. Mavic's Service des Courses – those

blazing yellow motorbikes with mechanics and spare wheels hanging off the back – are very much the public face of a French company that celebrated its 125th anniversary last year.

In that time it has reshaped the cycling landscape, with highlights including creating the first complete wheel when tradition dictated rims, spokes and hubs were all manufactured and fitted separately (see issue 19). It was the first to use carbon in wheels; it produced the first aero wheel; the first electronic groupset; and its wheels were seen beneath the Garmin, Cofidis and Katusha teams in 2014.

Mavic couldn't be more stereotypically French if it wore a beret and had a string of onions around its neck. Which makes it a bit of a letdown when I arrive at the French HQ to discover that the carbon wheel range is manufactured and built in... Romania.

'Privacy is important. Our innovations aren't marketing gimmicks'

'But we make most of our aluminium rims in Saint-Trivier-sur-Moignans, while all the R&D and prototyping is done at our Annecy HQ,' says Michel Lethenet, a former mountain bike journalist who is now Mavic's global PR manager. 'It's where I'm taking you now...'

Inside headquarters

Mavic's HQ is unlike any bike manufacturer's facility I've ever visited, partly because most of the mannequins on show at the entrance are adorned in running gear. 'We're owned by Finnish-based Amer Sports,' says Lethenet. 'It also owns Salomon, as well as brands like Wilson [tennis] and Suunto [heart rate monitors].'

The building measures 17,000 square metres and houses around 900 staff, with 125 of those working for Mavic. Though one of the big players in cycling, Mavic is around a tenth of the size of Salomon. But whether you're a runner or cyclist, this part of France is an endurance sport mecca





Mavic is owned by Amer Sports, whose portfolio also includes Salomon. Both brands share the milling workshop

with the HQ sitting within the shadows of the Parc Naturel Régional du Massif des Bauges – a huge, mountainous nature reserve.

It's an inspiring setting for Mavic's team of engineers to design and test the next generation of wheels – or so I imagine. 'Non autorisé' is a common response from Lethenet when I go nosing in rooms and down the many corridors that branch off from the main atrium in search of new products or futuristic testing procedures.

'Privacy is important. Technology and patents are important,' says Lethenet. 'If we create new things and we patent them, it's to preserve all the investment and effort to create that product. Our innovations aren't marketing gimmicks.'

Mavic is far more open about its clothing and shoe range, created by an apparel department that harks back to this area's milling heritage. It's stacked high with technical fabrics, and Lethenet is keen to emphasise the advantage Mavic has in creating functional sportswear thanks to its close association with Salomon. But we haven't come here to look at jerseys. To most riders the name Mavic means one thing: wheels.

'OK, if you want history, let's have a look at the Service des Courses area,' says Lethenet. 'And yes, you can take photos.'

Service des Courses

C'est formidable. Tucked away in Mavic HQ is a road cyclist's fantasy. Here is where Mavic trains its team for the neutral mechanical service they've provided at Classics and stage races for over 40 years. In 1972, a team manager's car broke down while following the Critérium du Dauphiné Libéré. Mavic chairman Bruno Gormand lent his own car to the manager and

C

ROUND OF VICTORIES

Many a legend has ridden to victory on a set of Mavic hoops

Sean Kelly wins Paris-Roubaix

Describing his 1984 victory, Sean Kelly recently told *Cyclist*, 'When you come to the end at Roubaix, you're tired. You can't know how the other guy's legs feel. He could be feeling really good. You never know with a sprint. There's always that bit of nervousness and, of course, a fall or mechanical is very possible.' If that mechanical had arrived, all fingers would have pointed at Mavic, as Kelly used its 'Tout Mavic' system. In short, Mavic provided every aspect of the bike except the saddle, seatpost and bottle cage. Kelly arrived at the line unscathed, and his victory sent Mavic's reputation through the roof.

Greg LeMond upsets Fignon

Going into the final time-trial at the 1989 Tour de France, Laurent Fignon led Greg LeMond by 50 seconds. Just 24.5km later, LeMond took the win by eight seconds. His incredible ride was on a Bottechia frame with Mavic bars, wheels and groupset – the only time Mavic won the Tour de France as a groupset supplier. The rear wheel was Mavic's carbon Comete, which derived its name from the 1986 visit of Halley's Comet.

Dan Martin ends 2014 on a high

Garmin-Sharp's Dan Martin made a strong finish to the 2014 season by winning Il Lombardia – the second Classics win of his career. Martin's team-mate Ryder Hesjedal took an unforgettable turn on the front to catch the leading group, before Martin timed his winning attack to perfection. Mavic is keen to point out that Martin not only used its Cosmic Carbone Ultimate wheels, but its Cosmic Ultimate footwear as well.





Left: A shipment of wheels is ready to be shipped to Qatar for February's road race

rims – up to 27 and 28 now. That race is unique because we also deflate tyres to just five bar of pressure [72psi].'

In the corner of the Service des Courses is a lump of carbon that's dusted with memories. It's the Lotus Super Bike Chris Boardman rode to track pursuit gold at the 1992 Olympics and, in the process, awoke British cycling from a medal-less slumber that had lasted 72 years.

While design guru Mike Burrows and Lotus rightly received technological praise, Mavic's contribution is less heralded but equally as progressive. On the rear was a Mavic disc, upfront the Mavic 3G – a carbon tri-spoke wheel – which encountered a unique problem.

'We were heavily involved in the development of the bike because there was only one fork leg,' says Lethenet. 'We had to forge a bespoke hub to cope with the asymmetric torque.'

It also forged a relationship with British Cycling that continues to this day. Since Boardman's exploits, Britain has bathed in track gold while French cycling has suffered a malaise. It all got too much for the then director of French cycling at the London Olympics. After Jason Kenny had demolished France's great hope, Gregory Bauge, in the men's sprint, Isabelle Gautheron complained that GB was using 'magic

'Tony over there can change a wheel in under 15 seconds, no problem'

the idea was born. A year later, Mavic's neutral service appeared officially at Paris-Nice and has been supporting races and riders ever since.

'In 2014 we covered 89 events – professional, amateur, sportives and mountain bike,' says Lethenet. 'The Tour is obviously very important but the most demanding is Paris-Roubaix where we have 17 people involved. That's on top of four cars, four motorbikes, one lorry and 120 pairs of wheels. Tony over there can change a wheel in under 15 seconds, no problem.'

I look through a window at Tony, who's busy jet-washing a Skoda. The window is framed with route maps of previous Tours and posters of cycling legends. I'm half expecting Ned Boulting to walk into shot, but this is no parody – it's Tony's life. He's been doing it for 30 years.

'Things have changed,' he says. 'A race like Paris-Roubaix, riders are using ever-wider



wheels'. 'They hide their wheels a lot,' she said at the time. 'Do they really use Mavic wheels?'

The British media had a field day – 'Quelle Horror', reported the *Daily Mail*. Lethenet was more pragmatic: 'We worked with British Cycling a lot during the build-up to London and continue that relationship today, in Manchester, here and in the wind-tunnel we use in Geneva. We offered the same service to the French guys but they never came. And then they yell.'

Ironically, the new €68million velodrome in the suburbs of Paris is a legacy of France's failed bid to stage the 2012 Olympics. It's also a sign that the French are shrugging off a culture of racing from the heart and beginning to embrace technology. 'They have to,' says Lethenet. 'Cycling is only going to become more scientific.'

Leaving the Service des Courses, we head to the car for the 150km drive to the aluminium

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MAVIC FIRSTS

In its 125-year history, the French brand has been first to market with numerous innovations...

1889 Mavic formed by Charles Idoux and Lucien Chanel. The plan is to make spare parts.

1933 The company expands into the production of children's pedal cars.

1934 Mavic makes its first bicycle rim constructed from aluminium alloy. The 'Dura' duralumin rim is used by 1934 Tour winner Antonin Magne.

1973 The first anodised rims – the Special Racing Service – protect against corrosion. For the first time, coloured rims hit the market: gold, silver and blue.

1975 Mavic designs the double-hook-bridge rim to seat a high-pressure tyre, developed with Michelin.

The same year it launches the 500 – the first hub with sealed radial bearings.

1979 Mavic works with Renault-Gitane to develop Bernard Hinault's Profil bike. Ahead of the game, Mavic undertakes wind-tunnel tests at the Institut Aérotechnique in Saint-Cyr.

1980 The Speelo rim fails to hit the mass market. Moulded with thermoplastic and glass fibre, it lacks rigidity and, despite significant investment, never reaches the consumer.

1985 Mavic's Comete carbon fibre disc wheels are launched. A new era of aerodynamics and lightweight construction has begun.



rim factory in Saint-Trivier. As we walk we pass numerous machines revolving Mavic prototypes at speed with mud and water flying everywhere. 'We're testing for corrosion and waterproofing,' says Lethenet. 'That's as much as I can say.'

Cycling's epicentre

Saint-Trivier-sur-Moignans is about 30 miles north of Lyon and is bathed in cycling heritage, having hosted some of the biggest races on the calendar. Stage five of the Dauphiné started here in 2012; Paris-Nice visited in 1977, as did the Tour just a few months later. That day went to Dutchman Gerrie Knetemann, though Bernard Thevenet won the overall title, the second of his two Tour victories.

The factory is a glimpse back in time – not surprising as this factory has been producing rims since 1966. At one stage, it was reported that 65% of the world's bike rims were produced here, before Mavic spread to Romania and Asia.

'About 90% of our aluminium rims are made here,' says Lethenet, 'with 10% – mainly entry level rims – being made in the Far East.'

Around 70 staff work in this large warehouse full of huge shelving units that burst from the concrete floor right up to the corrugated roof.

Look a little closer and you notice those industrial shelves hold six-metre lengths of aluminium, profiled as per Mavic's particular rim design. Mavic can claim to have perfected the art of rim profiling, as back in 1975 in partnership with Michelin and its Elan tyre, it patented the hooked rim shape that's now the norm to seat a clincher tyre.

There's certainly an air of proficiency as the aluminium is placed into a machine that bends and cuts it into a circular shape. 'Always cut in a group of three and always remembering that the diameter's going to decrease when the rim is welded,' says Lethenet.

The two ends are then welded together. While entry-level Mavics such as the Aksium Ones use a traditional pin join, the Soudé Usine Process (SUP) of higher-end models involves hammering a rim-profile shaped wedge into the rim's end to ensure it keeps its shape when welded together at very high temperature. The excess material at the join is then 'deburried', ensuring a smooth ride and no shuddering when braking.

'The next step is drilling [the spoke holes], and protocol depends on the level of the wheel,' says Lethenet. Again, for entry-level wheels it's more basic: the rim is clamped into a large drilling machine and the requisite holes drilled.



'We worked with British Cycling in the build-up to London 2012. We offered the same service to the French but they never came'



If it's a higher-end model such as the Ksyrium SLS, it will feature Mavic's FORE technology, developed back in 1999. Mavic worked with a robot specialist to design a tool that doesn't so much drill the rim as push into it and create a thread so that the spoke can be screwed in.

'By not drilling all the way through, not only do you not need rim tape, but you save weight because you don't need as many spokes due to not losing rim strength,' explains Lethenet. 'Notice too that they're not in a straight line. The rim is asymmetric to balance the tension of each spoke.' It's a fascinating process, albeit one we are not allowed to photograph. 'Non autorisé.'

The inter-spoke milling is pretty impressive, too. Within enclosed machines, precise drills and sanders shave curves into the rim walls in the spaces between the spoke holes to save weight without sacrificing rigidity. 'You can reduce up to 10% of weight this way,' says Lethenet. Mavic originally termed this process 2D, then advanced to 3D and, for 2015, you've guessed it: 4D.

'With 4D, everything's rounded, not just between spokes but the edges, too. It'll be seen on the 2015 R-Sys SLR. It reduces inertia so is great for climbing. It's also better at braking than previous models because it features our Exalith 2 technology [which improves braking power].'

Things are finished off with the graphics – stamped if top-end, stickers if not – and then they're boxed up for either building in Romania or sent to retail to do similar. 'I counted once, and there are over 100 processes involved in constructing a Ksyrium,' says Lethenet. 'This company is founded not only on innovation but on precision, too.'

History makers

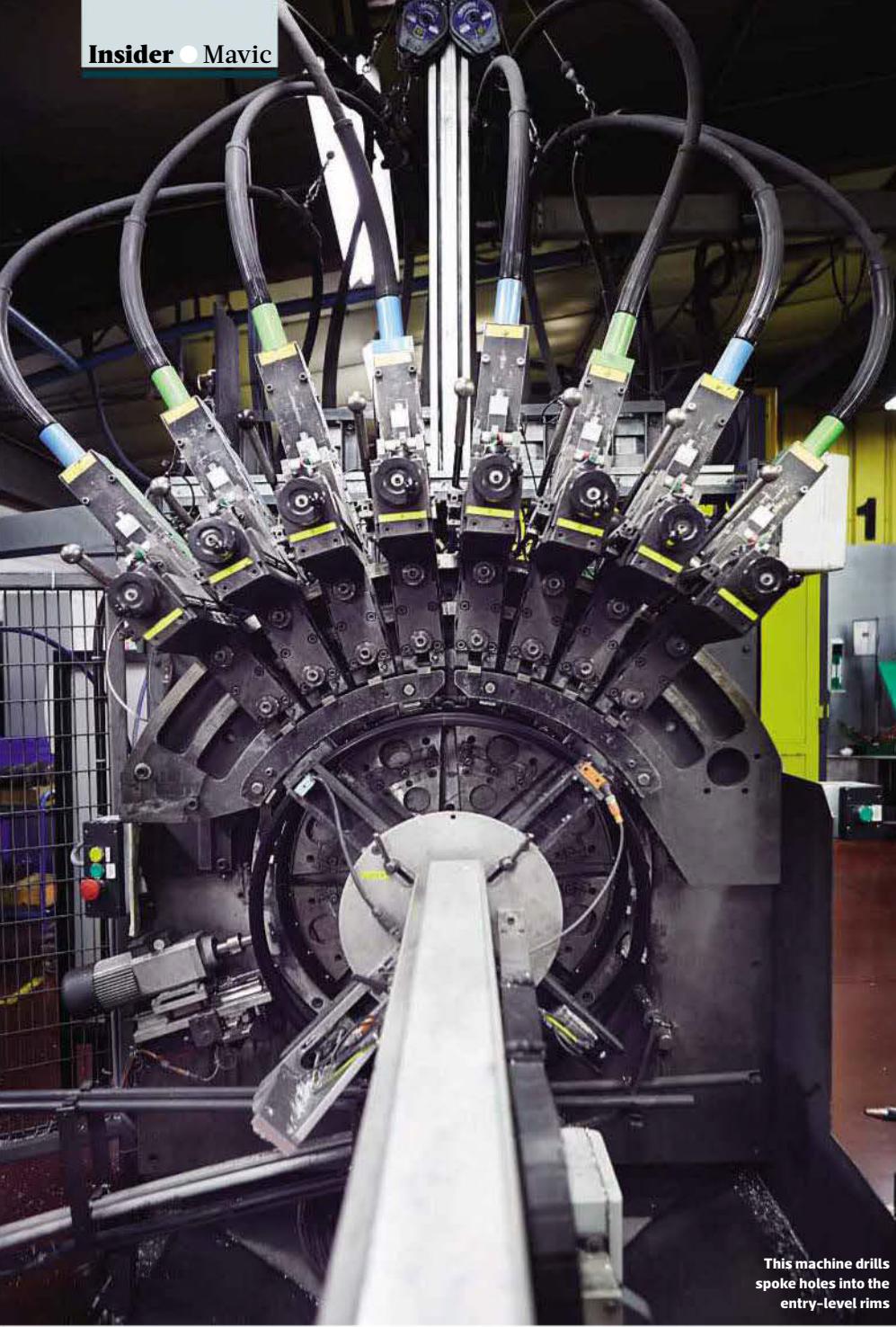
In 1889 brothers Léon and Laurent Vielle created a nickel-plating business under the brand name AVA. Soon, colleagues at AVA, Charles Idoux and Lucien Chanel, ventured into the manufacture and sales of spare parts for the brave new mobile world of cycling. Both companies had the same president, Henry Gormand, and he helped to create this new brand, and it was named Manufactory of Articles for Velocipedes Idoux & Chanel – or Mavic.

Their business took off on discovery of the cycling benefits of duralumin, an aluminium and copper alloy that proved popular in the 1920s and 30s, especially for constructing rigid airship frames. Pieces of fire-ravaged duralumin littered the Lakehurst Naval Air Station in New Jersey in 1937 when the Hindenburg met its fiery end. For Mavic, ◁

Above left: Stretches of aluminium with a clincher profile are fed into a machine that curls and cuts them into wheels

Above: Chris Boardman's Olympic-winning Lotus sits on display





This machine drills spoke holes into the entry-level rims

© duralumin played a covert role in the Tour de France victory of Antonin Magne in 1934.

Ever since Maurice Garin won the inaugural Tour in 1903, cyclists had used heavy wooden wheels to carry them into Tour folklore. In 1934, Mavic created the first duralumin rims but, wary of the competition stealing its ideas, it painted them to look like wood. Mavic called them the Dura rims and they weighed 750g against the 1.2kg wooden versions.

A year later the rims were brought to public knowledge in somewhat tragic circumstances. Spanish cyclist Francisco Cepeda was killed on a downhill stretch of the Galibier using the Dura rims. Many blamed Mavic but an enquiry ruled that it was the poor gluing of the tubulars that caused the accident. Still, newspapers ran the

'The road market is traditional. It's hard to make people change their mind about technology'



story as headline news and, in terms of PR, it couldn't have been much worse.

In fact, not all of Mavic's innovations have met with widespread success. In 1992, 16 years before Shimano launched Di2, Mavic created the first electronic groupset, the wired Zap Mavic System (ZMS). Chris Boardman used it and was a fan (see issue 24).

'The beauty of ZAP was that electricity wasn't used to shift the gear,' he told a US magazine. 'The battery only had to send a signal to the rear mechanism where a solenoid engaged the jockey wheel and the rider's pedalling action changed the gear. It meant the battery could be tiny.'

Unfortunately, you could only shift one sprocket at a time – not nearly enough for the sprinters – while reliability issues killed retailer and consumer confidence. Despite ONCE and RMO using it in the Tour, ZAP was taken off the market in 1994.

Mavic tried again in 1999 with the wireless Mektronic, but again issues such as limited gear range meant it failed to gain a foothold in the wider cycling community and the product was once again dropped.

'Maybe we were too early on the market,' says Lethenet. 'Mind you, electric shifting still isn't super-popular. The road market is traditional. It's hard to make people change their mind about technology.'

No one can accuse Mavic of not trying. It is constantly pushing the envelope and will continue to do so. Like many in the industry, Lethenet suggests greater integration between components is the future. 'It makes sense that there's greater connection between wheel and fork,' he says. 'We've studied it in the past and have come up with some solutions. As usual the difficulty in the bike industry is that we have so many players on one bike, it's tough to organise everyone around the same table. We're also looking at different materials.'

What are those materials, we hear you ask? 'I can't tell you,' says Lethenet. 'It must remain private.' Or 'non autorisé' as they say at Mavic. **James Witten is a freelance journalist who happily allows cameras into all his private areas**

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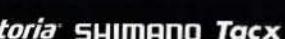
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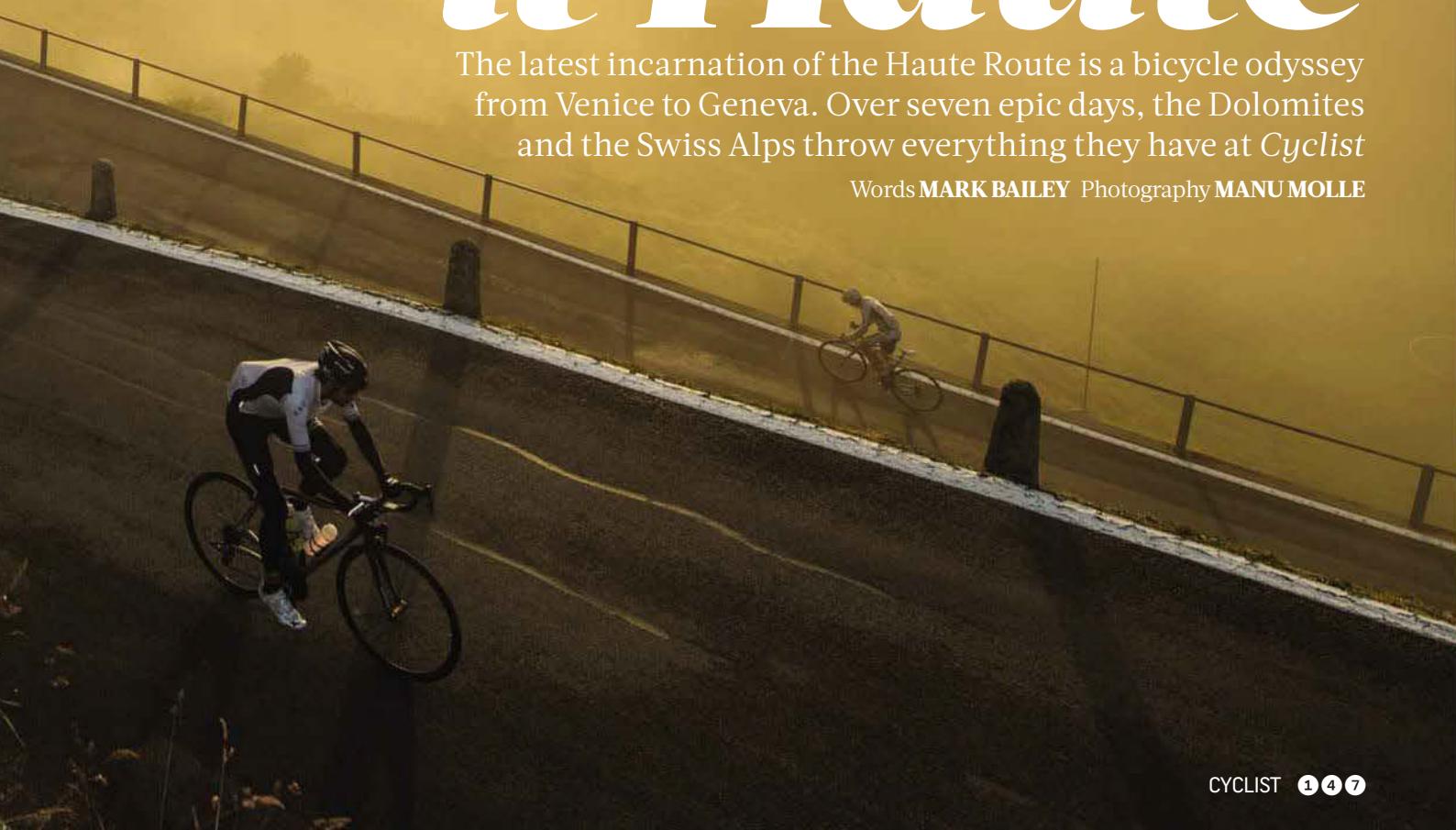




Some like it Haute

The latest incarnation of the Haute Route is a bicycle odyssey from Venice to Geneva. Over seven epic days, the Dolomites and the Swiss Alps throw everything they have at *Cyclist*

Words **MARK BAILEY** Photography **MANU MOLLE**





The brutal 2,652m climb up the Gavia – the third col of a gruelling Stage 3 – is no place to bonk. But Cyclist did anyway

High up on the exposed 2,284m Julierpass in Switzerland, at the start of Stage 5 of the inaugural Haute Route Dolomites Swiss Alps, the gruppetto, in which I've been dwelling, is engulfed by dense fog and stinging curtains of rain. Today is the marathon stage, a 175km odyssey from St Moritz to Andermatt laced with 3,600m of ascent. Some of the 344 riders from 40 different countries who signed up for the Haute Route's latest seven-day event (a 933km journey from Venice to Geneva with 20,350m of climbing) began the day wondering if they'd make the daily time cut-offs. Now they're concerned only with getting down this descent without tumbling off their bikes in a tremouring, sodden mess. For the next hour I squint through rain-drenched eyes at scenes of cycling Armageddon.

With visibility poor and winds clawing at riders' soaking wet limbs, the stage soon feels like a polar journey gone wrong, although this section remains sensibly untimed, enabling riders to do whatever is necessary to plough onwards. Some riders raid cafes and stuff placemats, toilet paper and newspapers into their shoes and jerseys for warmth. Others huddle under trees or simply linger on bends, shivering and shocked. Lower down the valley an industrious few dive into a village store to

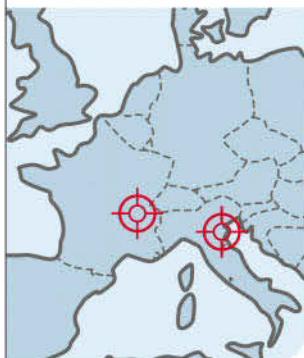


buy clingfilm, which they coil around their soggy legs as if wrapping leftover sausages. The more troubled are picked up by the organisation's vigilant medical team, wrapped in gold foil like sad little Christmas presents and posted off to the broom wagon. In total 26 riders quit within the first 40km – six months of hard training willingly abandoned in exchange for some much-needed shelter.

If this freakish storm lasts all day I'm not sure I'll last the distance. God help the Brazilians and Portuguese in the peloton. At least, being English, I'm used to getting wet. When finally I reach the relative warmth of the valley I stop in a town to massage my sodden toes into life. Mercifully, the weather begins to clear. A man emerges from a sports shop and asks me about

The details

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What Haute Route

Dolomites Swiss Alps

Where Venice to Geneva

When The next edition is from 31st August to 6th September 2015

Distance 900km

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© this peculiar event that's deposited groups of Lycra-clad zombies in his town, shuffling around the streets asking for hot drinks and dry socks. 'We're doing a new edition of the Haute Route – a seven-day mountain sportive,' I say. 'This one goes from Venice to Geneva. It's the best yet, I think.' He stares at my blue lips and quivering legs, absent of even a few hairs to keep them warm, and frowns: 'You do realise you could just lie on a beach for a week, don't you?'

Stage 1: Venice-Conegliano-Cortina d'Ampezzo, 123km, 2,600m ascent, 1,650m descent

The Haute Route begins in balmier climes a few days earlier by the sun-drenched waterways of Venice. This new edition of the revered multi-day sportive promises stunning landscapes, iconic climbs and a momentous challenge, with half of the cols exceeding 2,000m in altitude. Having completed the Haute Route Alps and Pyrenees in the previous two years, I am intrigued and petrified by the latest instalment.

During the Haute Route everything is arranged for you: your luggage is transferred

Lycra-clad zombies are shuffling around the streets asking for hot drinks and dry socks

to your new hotel each day; feed stations await you along the course; post-race dinners and massages greet you at the finish line; and an army of motorbike outriders guide you along. All you have to do is keep pedalling for 900km over some of the most colossal mountains in Europe – and beat the daily time cut-offs if you want to be crowned an official finisher.

Following a bus journey from Venice to Conegliano at the foothills of the Dolomites (Venice being unsuitable for a large group of cyclists) we set off from beneath the shadow of a 10th century fortress to commence our 123km journey to Cortina d'Ampezzo. The first climb is the 706m Passo San Boldo. The road rises sharply through a series of tunnels, then follows a long uphill slog, during which riders smartly work together in groups, before we tackle the feared 2,236m Passo Giau.

The Giau, which averages 9% over 10km, was once described by Ivan Basso as 'like a slap in





The extraordinary
tunnel system can't
disguise the elevation
gain up the 706m Passo
San Boldo on Stage 1

The jagged ridge of the Sella massif in the distance is one of the many visual highlights of Stage 2, not least because the riders don't have to climb it



When I finally crawl over the top I'm rewarded by being electrocuted – twice. It's a harsh start to the week

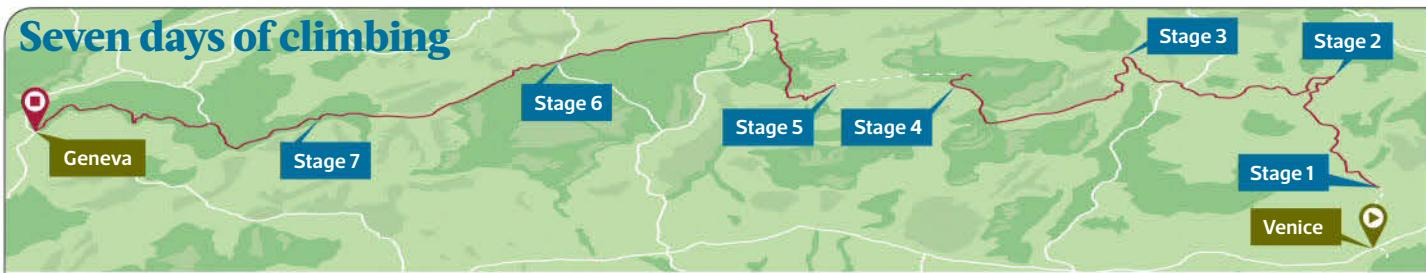
‘the face’. The steep gradient chews hungrily at our legs for the entire climb. But the upper reaches are starkly beautiful, with rock pinnacles jutting out of the earth like bayonets around a solitary road that meanders through a vast mountain pasture. When I finally crawl over the top I'm rewarded by being electrocuted – twice. In a bid for a toilet break, I've crawled under what I now realise is an electrified cattle fence. It's a harsh start to the week.

Stage 2: Cortina d'Ampezzo-Merano, 140km, 2,500m ascent, 3,400m descent

Day two takes in some sublime mountain scenery. Travelling through the heart of the Dolomites, we ride past the Sella massif – a cluster of striking grey peaks that shift colour in the sunshine – turquoise lakes, fragrant pine forests and thunderous gorges. We take on the 2,105m Passo Falzarego, the 2,239m Passo Pordoi – the highest surfaced road over a pass in the Dolomites – and the 1,745m Passo di Costalunga, whose final kilometre rises to 10%.

The overwhelming reaction at the end of the day is that this is a stage to remember. ‘It was probably the most stunning ride I've ever had,’ says Canadian rider Dave Scott. ☺

Seven days of climbing



STAGE 1

Passo San Boldo Height of pass: 706m; Altitude gain 446m; Length: 17km
Passo Giau 2,236m; 1,456m; 33km

STAGE 2

Passo Falzarego 2,105m; 894m; 16.4km
Passo Pordoi, 2,239m; 637m; 9.4km
Passo di Costalunga; 1,745m; 444m; 10km

STAGE 3

Passo Palade 1,518m; 1,199m; 17.5km
Passo del Tonale, 1,884m; 1,199m; 14.5km
Passo di Gavia 2,652m; 1,337m; 17.5km
STAGE 4
Passo dello Stelvio 2,758m; 1,590m; 21km
STAGE 5
Julierpass 2,284m; 469m; 8km
Lenzerheidepass 1,549m; 693m; 14km

Oberalp Pass 2,046m; 907m; 20km

STAGE 6
Furkapass, 2,436m; 897m; 13km
Col de Bratsch, 1,095m; 426m; 7.5km
Crans-Montana, 1,510m; 950m; 15.5km
STAGE 7
Pas de Morgins, 1,369m; 967m; 15km
Col du Corbier, 1,230m; 370m; 8km

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One rider sums it up: 'I cried three times today and back at the hotel I'm going to bawl like a baby again'

Stage 3: Merano-Bormio,

151km, 4,000m ascent, 3,100m descent

Bonked. Blew up. Cracked. Whatever your preferred terminology for that terrible moment when your muscle glycogen stores are depleted and every pedal stroke suddenly feels like an ordeal, that's what happens to me today. Stage 3 isn't officially a marathon stage but with 4,000m of ascent over 151km it feels like one.

The first climb to the 1,518m Passo Padale averages 7% but hits 12% in places. The second ascent to the 1,884m Passo del Tonale is guarded by mellower gradients of 6% but the weather is baking hot and I feel dizzy by the time I start the third ascent to the colossal 2,652m Gavia, which the *Gazzetta dello Sport* once lyrically referred to as 'a voyage, an adventure, a novel'. Although it averages 8%, there are patches at 16% and prolonged sections of 10-12%. A snow storm on this climb in the 1988 Giro d'Italia saw some riders forced to take shelter in mountain refuges.

After the bonk, the reward is one of the most dazzling descents I've ever seen, a swirling journey past pristine pine forests, glacial valleys and twisted needles of rock. As so often on the Haute Route, the pain delivers rich dividends. But I'm not alone in my suffering today. Fellow rider David Graham admits, 'That was the hardest day I've had on the bike yet. I was all over the place, emotionally and physically.' Gretchen Miller of New Zealand adds, 'The hardest climb was the Gavia – the 14% section was brutal. But the views at the top were amazing.'

Stage 4: ITT Bormio-Passo Dello Stelvio,

21km, 1,550m ascent

With no rest days the time-trial day is cheekily dubbed 'the day off' by some riders. Hardly the case. At 2,758m the Passo dello Stelvio is the highest point on the 2014 course and a 21km time-trial up this monolithic slab of rock cannot be underestimated. A legendary scene of Giro d'Italia drama, the Stelvio was first included in the race in 1953 when Fausto Coppi said he thought he was 'going to die'. The route averages 7% but there are kicks of 12% and the famous coil of hairpins halfway up is a daunting sight after three consecutive days in the saddle.

The time-trial begins in the town of Bormio under light drizzle, which intensifies as the day

progresses. In the eerie silence of the climb I can hear the thundering of distant waterfalls and the buzz of giant electricity cables overhead. As the altitude soars, glimpses of the sheer drops from the side of the road into the valley leave me wincing. Depleted from the day before, I cautiously trundle up in two hours, but the buzz of tackling this famous serpent of asphalt lingers long after I've crossed the finish line. For Gretchen Miller this was just as special: 'The tunnels and switchbacks felt great and set you up with lots of little mini-goals, and the views back down the valley were spectacular. The whole week was worth it just for that one climb.'

Stage 5: St. Moritz-Andermatt,

175km, 3,600m ascent, 3,100m descent

The storm at the start of Stage 5 is biblical, but once Mother Nature's impromptu ice bucket challenge ends the remaining cyclists rekindle their body heat on the 1,549m Lenzerheidepass which features a gentle 693m climb over 14km. Following my dramatic bonk on Stage 3 I force myself to eat and drink, even though the cold has diminished my appetite. But by the time I start the final climb to the 2,046m Oberalp Pass the events of the day have taken their toll. It requires a soul-searching final effort to grind through the brooding high-altitude landscape and when finally I reach the windswept summit I realise I've been on my bike for almost 10 hours.

The truth is that such melodramas only add to the epic quality of the Haute Route challenge. Back in the race village I see riders nursing hot mugs of tea, eagerly swapping tales and comparing war wounds. They're proud, not traumatised. Australian Stephen Stanley sums it up best: 'I cried three times today and when I get back to my hotel I'm going to bawl like a baby again.'

Stage 6: Andermatt-Crans Montana,

142km, 3,100m ascent, 2,350m descent

Following the carnage on day five, riders arrive at the start line wearing every item of clothing they own. Nobody is getting cold today. Fortunately, after a chilly descent of the 2,436m Furkapass – scene of the famous car chase in *Goldfinger* – the day remains blissfully sunny and riders get to wallow in the pristine Swiss





Left: The descent of the Furkapass on Stage 6 was the setting for the famous car chase in the Bond movie, *Goldfinger*

Mountains of food

Nigel Mitchell, head of nutrition at Team Sky, reveals his nutritional secrets for an alpine stage race

EAT THE RIGHT PROTEIN

'The digestibility of food is a big factor during a mountain stage race. You don't want to feel bloated or heavy the next day so it's better to choose chicken or fish from the menu instead of steak, and rice and potatoes are easier to digest than bread.'

PACK YOUR PORRIDGE

'Always take your own porridge – you won't necessarily get it in European hotels but it's got the ideal mix of carbs and protein for a long stage and is easily digested. I recommend our own Team Sky High Protein Porridge which you can make with water, milk or yoghurt. Try to have it two hours before the start.'

SUPPLEMENT WITH FISH OILS

'Start taking fish oils about a week before the race and keep taking them during the event. They contain eicosapentaenoic acid, which is anti-inflammatory and combats the stress in the body caused by exercise.'

CARRY HYDRATION TABS

'Hydration tabs don't weigh anything but when you start seeing stars and sucking sweat out of your jersey for water you can put one in your water bottle to sort yourself out.'

Nigel Mitchell was speaking on behalf of CNP, official supplier of sports performance to Team Sky. cnnprofessional.co.uk





Do it yourself

Getting there is the easy bit...

TRAVEL

The 2015 Haute Route Dolomites Swiss Alps features a different route to last year's – one the organisers call their toughest ever, you'll be pleased to know – and it has been reversed, so it starts in Geneva and ends in Venice. That has also entailed changing more than half of the route to take in new challenges along the way. Easyjet flies from Luton to Geneva from £65 return, while flights are also available from London, Manchester, Birmingham, Newcastle, Glasgow and Edinburgh.

ACCOMMODATION

The organisers of the Haute Route offer a range of accommodation packages with rooms in different host towns along the course. Breakfast is included in the price and your luggage is transported to the next hotel each day. Basic shared accommodation for the whole event starts at €480, while there are also 2-star twin and double rooms available costing €890, and a 2-star single room package for €1,350. There are only limited spaces left for 2015 so get in quick if you want to enter.

Riders pour across the line in the fortress town of Conegliano

Despite its brutal course, and the unpredictability, the Haute Route is an accessible challenge

► Alpine scenery. We ride on smooth asphalt roads past sparkling glaciers, emerald pools, tranquil valleys and snow-crowned peaks. Not even my saddle sores can dilute the enjoyment that comes from riding through such majestic mountain landscapes – and staying dry.

Stage 7: Cras Montana-Yvoire-Geneva, 181km, 3,000m ascent, 2,700m descent

At the start of the final day a ripple of excitement goes through the peloton. The end is near and the 1,369m Pas de Morgins and 1,230m Col du Corbier seem like speed bumps after all the immense peaks, although the accumulation of another 181km of riding and 3,000m of climbing will sap every rider's aching legs.

The finish of the timed section, after 156km, is one of the most spectacular so far. We glide through sun-baked fields towards the glittering shores of Lake Geneva, before arriving in the medieval town of Yvoire, whose castle walls, moat and cobbled streets provide a fairytale finish to the week. Some riders devour burgers and ice cream in the sunshine. Others sit in silence, staring at their legs in disbelief.

Eventually the peloton reforms for an escorted procession into Geneva. As we ride along the shores of Lake Geneva, I have plenty of time to contemplate the question posed by the bewildered man outside the sport shop: would I rather have just been lying on a beach this week?

There were moments when I might have been tempted, but not if it meant I missed out on conquering some of the most sublime climbs in Europe. It's precisely this ebb and flow of emotions, fortunes, climates and landscapes that make the challenge of a multi-day event so special. But despite its brutal course, and the unpredictability of mountain environments, the Haute Route remains an accessible challenge for any amateur rider who dares to commit, to train, to plan, to endure, and to grimace or smile through whatever obstacle blocks your path. Just make sure you pack your rain gear. ♦

Mark Bailey still feels electric, and is still in shock

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Group dynamics

When you upgrade to a more expensive groupset, what exactly are you getting for your cash? Cyclist examines the differences between the component hierarchies

Words **NEIL WEBB** Photography **DANNY BIRD**

There's always one know-it-all in every bike club, the self-proclaimed fount of all cycling knowledge, and you can be sure of their opinion when it comes to the most expensive groupsets: 'Dura-Ace? Super Record? They're just for sponsored pros and mugs with too much money. Buy a groupset a level or two down – you get all the function for half the cost.' Annoying as these people are, you have to ask: do they have a point?

With all the major manufacturers' groupsets now featuring cross-compatibility, 11 speeds and a splash of carbon even at the lower end in some cases, is the top-end gear worth the extra cash? Do manufacturers simply use lighter materials as you go up the pecking order or is there more to these seemingly similar components than meets the eye?

While there are three major manufacturers when it comes to groupsets (for now – see p164), the choice as to which brand to opt for is pretty much down to personal preference, and this article will not be making comparisons between brands. Rather, we'll be breaking down the differences between components of each brand as we move up the hierarchies.

What does a Campagnolo Super Record rear mech have that isn't on Campagnolo Athena? Do Shimano Dura-Ace shifters have different internals to Shimano 105? Are the carbon arms on Sram's Force and Red cranks the same, just with different stickers? *Cyclist* has quizzed the manufacturers and we now have the definitive breakdown as to just how much bang you get for your buck.

For reference, the groupsets we will be comparing are the mechanical variants of Campagnolo's Athena, Chorus, Record and Super Record; Sram's Rival, Force and Red; and Shimano's 105, Ultegra and Dura-Ace. We'll leave electronic for another day.

You pays your money...

There's a plethora of options and sizes for components such as cranks, cassettes, bottom brackets and other

variables, so to give our comparisons a bit of focus we have a theoretical bike to spec. It has a BSA threaded bottom bracket, so all the cranks are 24mm spindle varieties (or equivalent), and we'll be running a 52/36 chainset with 170mm cranks, and an 11 or 12-25 cassette. A standard short cage rear mech and braze on front mech complete the shifting duties, and 108 chain links complete the drive. With this kit in mind, we've gathered weights, prices and the technical data to be able to offer a usable comparison. Some BB30 cranksets may be slightly lighter, and some larger cassettes with bigger sprockets would add some mass, but we can't account for every tiny variable.

Shift levers

One of the most visible and expensive parts of the groupset are the brake and shift levers: Ergopowers for Campagistas; STIs to Shimanophiles; and simply Shifters to the Srammies. These complex units not only take care of a large part of braking and shifting duties, but also influence the feel of the bike. Their rubber hoods are in your hands for the majority of every ride so it's worth making sure you like the shape, feel and shift.

Internally, the differences become pronounced at the top end and it's

While there are three big manufacturers to choose from, choice is pretty much down to personal preference





Here that the largest functional upgrades occur. Shimano's Dura-Ace shift levers rotate on up to four bearings, rather than the single bushing in an Ultegra STI. The shifting action on Dura-Ace requires reduced effort as a result, and the longevity of that light, slick feel is likely to be increased to boot.

Drop down another tier and the primary difference between 105 and Ultegra is the lever material itself – a cheaper alloy alternative is used for 105 in place of the Ultegra's carbon.

As you rise up the Campagnolo tree, the brake and gear lever material changes from resin through alloy to carbon, and there's an even lighter carbon used on the flagship Super Record, but the internals of the top three tiers (Chorus, Record and Super Record) share the same bearing-based shift mechanism.

This Ultra Shift mechanism allows for multiple upshifts and a five-gear downshift dump. At the lower end of the scale, Athena's Power Shift not only loses the bearings, it also loses

'Shimano has never been able to make a crank as durable or as stiff from carbon as it has from alloy'

the sprint friendly 'cassette dump' with just single downshifts available.

Sram's internals remain fairly consistent across the range, which makes its lower-end Rival groupset a great bet on paper. Just an upgrade to the Red cables will get you the same internal friction levels as the top tier. As you go up to the next tier – Force – you do gain carbon brake levers, and once you hit the Red level, both the shift and brake levers are made from lightweight carbon.

A glance at the weight table (p162) will reveal how Sram's fewer moving parts and bearing-free internals have

a weight benefit. Even its Rival levers are lighter than Dura-Ace or Super Record, and Sram's Red levers are 85g lighter than Dura-Ace.

Chainsets

Another substantial chunk of a groupset's price is the chainset. The crank arms and chainrings are what directly transfer your legs' power to the chain and onto the rear wheel. Stiffness is the primary objective.

Shimano – unlike Sram and Campagnolo – has steered clear of using carbon in its cranks. A few years ago, it bowed briefly to market pressure and made the 7801 Dura-Ace carbon crank, but it was shortlived and not fondly regarded by the engineers in Osaka.

Shimano product manager Pete Griffiths says, 'There's no performance value to using carbon for a crank. Shimano has never been able to make a crank as durable or as stiff from carbon as it has from alloy. And the alloy crank is far better value as it's cheaper to produce.' ◎

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So, with all Shimano cranks forged from humble aluminium, what's the benefit of moving up the ladder? 5800 series 105 shares the same four-arm bolt pattern and shifting guides as its more expensive brethren, but all is not as it seems.

Ultegra chainrings are made from a higher-grade alloy that improves stiffness, so the shifting is slicker and the bottom bracket axle is also a higher-grade steel, helping to reduce the weight by nearly 60g. Jumping to Dura-Ace gets you a different forging process and materials that increase crank arm stiffness yet further, plus the outer chainrings themselves are hollow (as are the Ultegra rings), improving the rigidity of the structure and most significantly improving front-end shifts. Chainring stiffness has a profound effect on shift quality.

For the Italian fans, Campagnolo Athena has an old school five-arm alloy or carbon option with an

In terms of benefits, the shift quality across the range of groupsets is affected very little by the rear derailleur

impressive (sub-650g) weight, but jumping to Chorus gets you the new four-arm crank. The arms allow you to swap between compact and standard chainrings on the same crank, but they're also stiffer than their five-arm cousins, offering better shift quality. As you ride up the Campagnolo ranks, the weight drops and bearings improve, up to ceramic level, but the shift quality is likely to remain pretty steady from Chorus level upwards.

PRICE AND WEIGHTS

Sram	RIVAL	FORCE	RED	
Shift levers	£191	332g	£292	320g
Brake callipers	£65	287g	£106	280g
Rear derailleur	£45	191g	£74	178g
Front derailleur	£29	79g	£39	70g
Cassette	£52	229g	£81	229g
Chainset	£146	844g	£261	800g
Chain	£28	260g	£41	242g
TOTAL	£556	2,222g	£894	2,119g
TOTAL	£1,714	1,841g		

Shimano	105	ULTEGRA	DURA-ACE	
Shift levers	£179.99	486g	£249.99	425g
Brake callipers	£69.98	388g	£109.98	335g
Rear derailleur	£36.99	234g	£59.99	195g
Front derailleur	£25.99	89g	£31.99	89g
Cassette	£37.99	269g	£54.99	212g
Chainset	£119.99	817g	£189.99	765g
Chain	£27.99	253g	£27.99	253g
TOTAL	£498.92	2,536g	£724.92	2,274g
TOTAL	£1,384.92	1,991g	£1,574.93	1,956g

Campagnolo	ATHENA	CHORUS	RECORD	
Shift levers	£175.99	372g	£243.99	350g
Brake callipers	£85.99	320g	£87.99	301g
Rear derailleur	£94.99	209g	£186.99	183g
Front derailleur	£33.99	92g	£76.99	76g
Cassette	£98.99	230g	£98.99	230g
Chainset	£292.99	640g	£363.99	683g
Chain	£36.99	242g	£36.99	242g
TOTAL	£819.93	2,105g	£1,095.93	2,065g
TOTAL	£1,574.93	1,956g	£1,574.93	1,956g

*We've limited manufacturers to three examples each, but the Campagnolo Super Record costs £2,052.93 and weighs in at 1,858g



It's a similar story at Sram: alloy cranks for Rival, simple carbon cranks and alloy spider at Force and a full carbon affair at Red level. The improved X-Glide chainrings are present across the range and, like Campag, the top-flight Red groupset has ceramic bearings in the bottom bracket. Ceramic bearings are generally harder and smoother than steel, offering less friction and greater longevity – at a cost.



Front and rear mechs

At the business end of any shifts you make are the front and rear mechs. These components derail the chain and move it onto an adjacent sprocket without the need to stop pedalling. It's one of the most complex pieces of engineering in the groupset, and would therefore seem to offer the greatest potential for improvements in performance for extra cash – but strangely that isn't the case. In

terms of tangible benefits, the shift quality across the range of groupsets is affected very little by the rear derailleur. Shifting performance at the rear is influenced more by cables and shifters than the rear mech itself.

So what does your money buy you at the top tier? A bit less weight thanks to carbon cages, titanium bolts and hollow pivots, and the longevity should improve as a result of sealed bearings and (in the case of Campagnolo

and Sram) ceramics, but otherwise you're mainly paying for sexy looks.

It's a different story up front. The front derailleur may seem like an altogether simpler beast than its rear sibling, but it's here that extra money buys noticeably improved performance, mainly due to increased cage stiffness. Across the ranges, a higher leverage design is now present for all the brands, reducing the force required at the lever, but the accuracy and speed of the shift is affected far more by the resistance to bending of the mech's plates.

Shimano improves the quality of the steel (and the longevity of the surface coating) as you rise up the ranks, whereas Sram and Campagnolo change material entirely as you ascend. Sram mixes alloy and tool steel (high-grade steel) for its range-topping Red front derailleur, whereas Campag chooses carbon for the less stressed outer cage. Drop down a notch and Campag simply loses the titanium doodads, but Sram swaps the lighter alloy outer plate for tool steel.

The front mech may not see as much use as other components on your bike, but it stands to benefit greatly from increased stiffness, and the resulting improvement in shifting means it's an area where money is well spent.

Brakes

Much like the front mech and the chainsets, braking is one area where components' inherent stiffness makes a huge difference to the overall feel and performance. The manufacturers all come at this in remarkably similar ways. With the length of the primary lever dictated by modern frame design (a rim's braking surfaces are between 40 and 50mm from the centre of the mounting point for a standard brake calliper) one key performance improvement that manufacturers can make is with the brake arm stiffness.

A secondary upgrade is often found in the pivot material: Shimano and Campagnolo both use a large bearing, rather than a bush, for their top-end callipers. This also has the benefit of reducing friction in the brake itself, lessening the force needed to retard the rim. This means Campagnolo's Record and Super Record brakes will make your hands ache less than Chorus or Athena. In the same way



► Dura-Ace will be easier on the hands than Ultegra and 105.

Brake pad compound improves as you spend more too, but this is temporary as they are a disposable item, but it is worth mentioning that Sram's Red brake has what is called the Aero Link. The name may hint at saved wattage, but the real benefit is improved modulation and control at the powerful end of the lever stroke. Of all the brands, Sram's Red callipers probably offer a bigger jump in performance over its lower level brakes than with any other brand.

Cassettes and chains

Finally we get to the chain and cassette. Once again, the more you spend, the more expensive the materials that are used. Campagnolo and Shimano both mount the larger sprockets on their top-end cassettes on alloy or carbon carriers. Dura-Ace has three titanium sprockets on a carbon structure; Campagnolo has three or six sprockets mounted on an alloy carrier for Record and Super Record.

Sram's Red groupset uses a different method. Its Powerdome cassette is machined from a single piece of stainless steel. The hollow structure is both impressively light and very hard-wearing, and this is a rarity with high-end cassettes. Usually the lighter cassettes offer little performance gain and you trade lower weight against decreased lifespan, but with Sram, you get light weight and some of the longest lifespan we've come across at any price point.

By way of conclusion, and to offer a response to the club know-it-all, yes there is a whole lot more to the groupset hierarchy than just dropping some grams. While each company may go about solving the issues in different ways, they all have the same aim. As you increase your spend, your money does get you less mass but it also gets you a lot more performance through detailed engineering and higher-spec materials.

Ultimately your budget is likely to be the biggest limiting factor, but at least if you spend the top money you can expect plenty of gains beyond impressing your mates when they see your bike at the café stop. *

Neil Webb is a freelance writer who agrees that quality is proportionate to payment

WHO'S ON WHAT?

The groupsets of the pros (and a new arrival)

Right now, the three big players have a stranglehold on the pro peloton's bikes. This year is a bit unusual as Sram has dropped from supplying five teams to just a single team in the pro peloton. There are a number of rumours about the reasons, but the most common is a lack of electronic shifting. This is likely to change (probably in 2016) but we don't know if we'll see teams switch back quite so soon.

One reason for this is the imminent arrival of a newcomer to the game. FSA has recently confirmed that it will be launching an 11-speed electronic groupset, and sponsoring at least two top-level teams – which happen to be two of Sram's biggest losses (and who are currently buying their own electronic Shimano groups).

At the start of the season, the sponsorship split went as follows...

CAMPAGNOLO

Movistar, Lotto Soudal, Astana, Europcar

SHIMANO

BMC, Cannondale–Garmin, Ettix–Quick–Step (customer – switching to FSA), FDJ, Giant–Alpecin, IAM Cycling, Katusha, Lampre–Merida, Lotto NL–Jumbo, Orica–GreenEdge, Tinkoff–Saxo (customer – switching to FSA), Trek Factory Racing

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Help me, Ronde

The cobbles, the climbs, the history – it can only be the Tour of Flanders. *Cyclist* gets a taste of what the pros go through

Words **PETER STUART**
Photography **GEOFF WAUGH**



The top tube of my BMC is currently obscured by a bright yellow sticker that runs along its length. It marks the 15 climbs that lie ahead of me over the 245km of the Ronde van Vlaanderen. This, the hard man event of cycling, promises not only climbs, but cobbles, crazy gradients and savage winds that blast across the Flemish landscape.

It's 6.40am and I'm standing in a state of sleep-deprived hypnosis in a car park beside

Bruges's Jan Breydel football stadium. A few thousand people surround me, many making last-minute adjustments to their bikes before shooting off to the start line 7km away in the centre of town. Unlike most European sportives, the start has no loud music, shouty commentator or starting pistol – instead participants can set off any time between 7am and 8am. By the time I amble to the start line it's 7.30am and all the serious riders have long since departed. I waste no time in hitting the first stretch of the infamous Flemish cobbles. ◉

The pain starts to show on Paterberg, the steepest climb of the day (above). It's not the hardest, though – that honour goes to the infamous Koppenberg (right)





As flat as Flanders may appear, it's home to many short climbs with painfully steep gradients

The path to Oudenaarde

The cobble is a curious little artefact. Protruding about one or two centimetres from the ground at random jagged angles, with a slippery and inconsistent surface texture, it would appear to have been designed deliberately to provide the worst possible surface for riding a bike on. Rolling along Bruges's cobbled city streets, I repeat to myself the advice I've been given time and time again: 'Loose hands, big gear, light steering.' It's all going remarkably well, but I begin to suspect these neatly laid stones pale in comparison with what lies ahead. Crossing a drawbridge out of the centre, hundreds of cyclists feed onto the main road and head on the 100km journey to where the cobbles proper begin.

Interestingly, none of the routes available on this sportive replicate the precise route



of the pro race of the following day. The race organisers decided in 2011 to loop over the Oude Kwaremont climb three times, offering a hub for spectators, but removing some of the classic climbs from the race's history. In contrast, the sportive follows a hybrid route between the old and new course. It covers 15 climbs ('bergs' as they're called), and a handful of cobbled flat sections. But first comes the trek to Oudenaarde.

On seeing the route plan, I imagined we would hurtle through the first 100km on

The details

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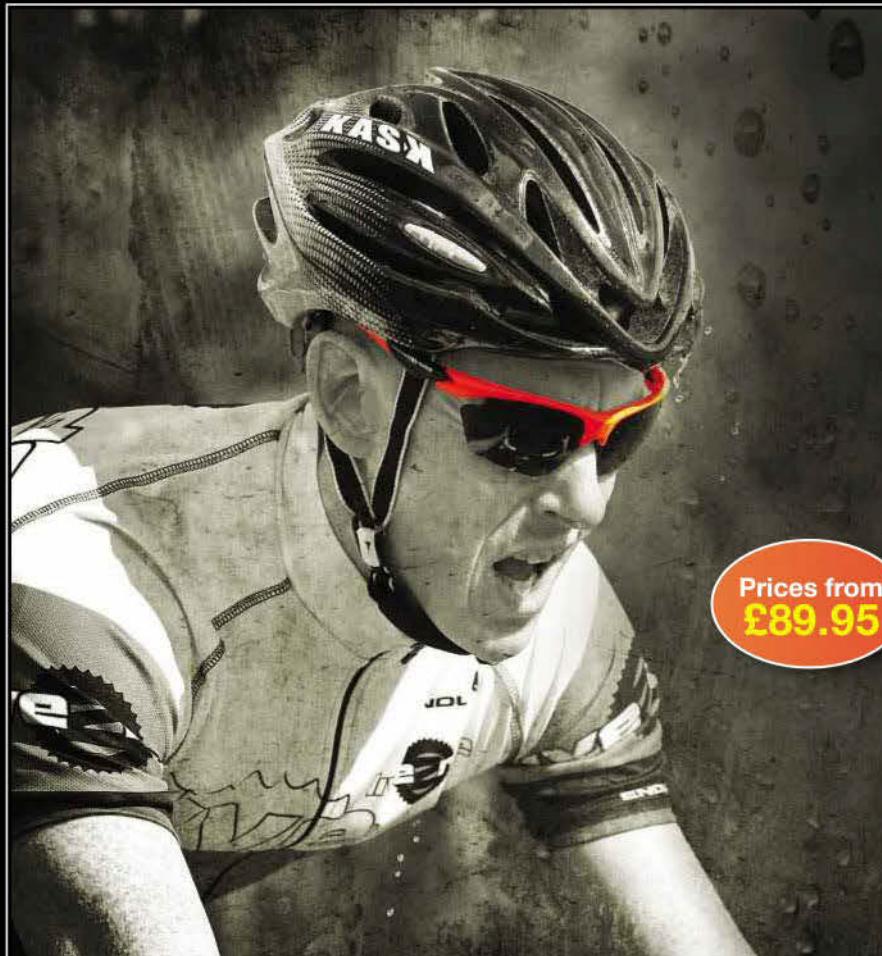
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The start in Bruges features cobbles, but these seem almost ceremonial compared to the pavé that follows

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wide roads in a pack hundreds deep. But unfortunately the organisers are quick to force us onto the cycle paths that border the roads. Little known to me is the fact that the use of cycle lanes is compulsory where they're available in Belgium.

While the cycle paths are impressively maintained and wide, we quickly find ourselves in a thick bunch squeezing through bollards and hoping that no unseen obstacles pop up out of the mass of riders. I get into conversation with a pair of friendly Londoners, Ryan and Dan, who warn that the next 90km is much the same, but promise that the cobbles will be worth the wait.

Up ahead a handful of riders are powering away from the group. I seize the opportunity for a little more space and sprint my way up to them. I glance behind and see a solitary figure chasing us down. 'That's one match burnt,' he exclaims in a strong Irish accent.

In our smaller group we manage to cover the first 100km in a little under three hours. Herbie, the match-burning Irishman, has pushed hard on the front at an alarming pace that means that by Oudenaarde I'm slightly worried that my own matchbox may soon be empty.

The tip of the Berg

As seemingly flat as the region of Flanders may be, it's also home to innumerable short climbs

The rider's ride

BMC Granfondo GF01 Ultegra Di2 2014, £4,400, evanscycles.com



The BMC Granfondo GF01 is the favoured bike of BMC Racing Team for the Classics season. This model is equipped with Ultegra Di2 and a gear ratio that beggars belief, offering a compact on the front and a 32-tooth sprocket on the rear – perfect for the inclines of Flanders.

The Granfondo is unusual in that its performance seems to be at odds with its feel. My first impression was that it was slow and harsh, but that came down to the feel of the 28mm tyres, which are fitted as standard. Removing much of the road

disturbance robs the bike of a spritely feel, but when against the stopwatch on some of my favourite Strava segments the GF01 was one of the quickest bikes I've ridden.

Equally, at times the construction of the bike led to an audible 'thud' on impact that somehow gave the impression of harshness, yet the feeling from on board the saddle was always one of comfort and compliance. Much like sitting on a train at 120mph versus rattling along a rough dirt track at 40mph, the BMC felt slow only as a consequence of its smoothness.



‘Looking ahead at the Molenberg snaking up into the hillside, I get my first real taste of the savagery of the Ronde’



The surface on the Molenberg offers very little grip – especially when the road ramps up to 15%

with painfully steep gradients. It's what makes the Tour of Flanders the domain of only the toughest riders. What's more, the insistence by the Flemish government to protect the cobbled road surfaces as sites of national heritage gives rise to a unique feature – the cobbled climb.

The first climb of the day is already strewn with broken spirits. The Wolvenberg, reaching only 60m of elevation at an average of 4%, looks easy on the route profile but it includes a nasty 200m stretch of 20%, and as we grind up the slope I'm painfully aware of the 130km left ahead of me.

Having crested the Wolvenberg we hit two flat cobbled sections in quick succession that make me realise just how mild the Bruges stretch was. My hands are tightening up, I'm pushing all my effort into a big gear and maintaining a reasonable speed, but it comes at a great cost to the energy reserves in my legs.

After our flirtation with cobbles, the road returns to glorious tarmac for a while, cutting through sunny farmlands, until I spy a cobbled path emerging from the hedgerow to our left. Looking ahead at the Molenberg snaking up into the hillside, I get my first real taste of the savagery of the Ronde.

The Molenberg is extremely difficult to climb. The cobbles give little traction and the road tilts up to a punishing 15%. More than a muscular

Herbie looks away in disgust as I take to the gutter. 'You can avoid cobbles at home, mate!'

For cardiovascular demand, the real challenge is maintaining balance. Remembering the friendly advice of fellow cyclists, I try to keep the gear high and my hands loose, but it's easier said than done. I'm struggling to keep a decent cadence and I'm gripping my bars for dear life.

What's more, by the time we hit the cobbled climbs, we're arriving alongside the stragglers from the shorter routes, and I have to dart and squeeze through gaps while keeping up some reasonable pace on the climb.

The Molenberg is followed by an easy 20km on tarmac punctuated by cobbled and concreted sections. But it's not long before the climbs are back, with the paved Valkenberg and Boigneberg striking in quick succession, and the cobbled Eikenberg following. The gutter offers some relief from the cobbles, although I feel a little guilty for rolling along its flat surface. Herbie, who I've stuck with so far, looks away in disgust, opting instead for the middle of the *pavé*. 'You can avoid cobbles at home, mate!' he shouts.

Then, only a food stop separates us from the hardest climb of the day – the Koppenberg.

King of the cobbles

In the run-up to the Koppenberg, it seems that only me and a Flemish man, who must be in his late seventies, seem to be keen on doing any of



A brief history of the Tour of Flanders

Over a century of pain

Back in 1913, the Flemish newspaper *Sportwereld* wanted to boost national pride for Flanders (and its readership figures). Newspaper director Léon van den Haute launched the race, aimed at finding the hardest of the Flemish cyclists. At first the event was held on normal roads, then so badly maintained that cobbles were unnecessary. The more modern cobbled roads are the consequence of restoration and preservation, and the race organisers had to defend against attempts in the 1990s by locals to tarmac the roads for the benefit of local transport. These days the roads are sites of national heritage.

The race has witnessed some genuinely unrideable conditions, and in 1985 only 24 finished from a field of 173. The event changed form in 2011, lapping over Oude Kwaremont and the Paterberg in an attempt to provide a focus for spectators, as well as shifting the finish to Oudenaarde from Meerbeke. The cyclosportive event began in 2004, and now welcomes 16,000 riders a year, with many more failing to gain a place.



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On the work at the front of our little chaingang, and by the time we reach the foot of the climb it's clear enough why – the road is crowded with walking cyclists. On the lower slopes the cobbles immediately drain what little reserves I have left, and I switch straight into my easiest gear – fortunately a considerate 34/32.

As the Koppenberg starts to bite, I'm juggling the quad-tearingly steep gradient with my route through the crowds and my traction on the cobbles. It was here in 1987 that Danish pro Jesper Skibby famously hit the ground while on a solo break, and was subsequently run over by the race director eager not to hold up the chasing pack. I'm hopeful not to reenact the scene.

I manage to stay upright, and just as I feel like I'm about to pop, I suddenly seem to be airborne and floating above the road. The cobbles have given way to tarmac and the relief is exquisite.

Before I have my breath back we hit the Steenbeekdries, which again mixes incline and cobbles. It's also the only stretch of the course to offer a cobbled descent, which is a prospect that has my already aching joints twanging with trepidation. Strangely, at speed the cobbles seem barely perceptible, and I touch 45kmh on the

descent (a glance at Strava afterwards shows that Nikki Terpstra hit 65kmh on this same stretch).

Next comes the Taaienberg, followed quickly by the Kanarieberg, the Kruisberg and the Karmelkbeekstraat. Keeping track of the climbs is almost as exhausting as riding up them, but I know we're winding towards the finish now, with a couple of obstacles in our way – the queen climbs of the day. The Oude Kwaremont and the Paterberg are both cobbled, with the Kwaremont being the longest climb of the day, and the Paterberg the steepest.

The Kwaremont may be long, but it's considerate in its incline and begins with a winding 5% tarmac section (it will be here that Fabian Cancellara will make his break in following day's pro race to win the 2014 Tour of Flanders). When the cobbles hit, there's no hiding as there's not even an inch of gutter, but I'm finding my rhythm and with the sun out, and the land opening up to pleasant vistas, I'm beginning to enjoy the rattle of the cobbles.

The *pavé* spikes up to an aggressive 12%, but then levels off and moves to a shallower 3% stretch. I spot some flat paving in the gutter and steal a moment of relief, until Herbie's look of

The climbs

Four to watch out for on the day

KOPPENBERG

Length: Around 600m. Max gradient: 22%
The most iconic of Belgian climbs, the Koppenberg forced even Eddy Merckx to get off and walk.

OUDÉ KWAREMONT

Length: 2,200m. Max gradient: 11%
Literally meaning 'Old Kwaremont', this is the longest cobbled climb of the day.

MOLENBERG

Length: 470m. Max gradient: 15%
Not the scariest statistics, but the Molenberg has savage cobbles that have been known to tear the undercarriages from beneath team cars.

PATERBERG

Length: 380m. Max gradient: 20%
Shorter than the Koppenberg, and less steep at its worst point, but the average gradient is substantially higher at 12.9%, making it a struggle all the way up.





disappointment pulls me back onto the cobbles. Looking over the rolling Belgian fields, I can see why, despite its desolate flatness, Flanders holds a magnetic charm over cyclists.

The Paterberg is the centrepiece of the pro race, featuring three times. The climb has an interesting history, in that it's one of the least historical climbs of the race. It was featured for the first time in 1986, only after local farmer Paul Vande Walle wrote to the organisers insisting his own self-paved farm track outdid any of those currently included in the race. They repaved it to 'regulation' cobbles and it's been a central feature ever since.

Squeezing my way up, I curse Vande Walle with all my limited breath. Taking the first corner of the Paterberg, the full 400m cobbled stretch lies in view, and the summit seems desperately far away. I'm sitting in my trusty 34/32 and trying to keep my cadence in double figures, but I do feel I'm finally learning how to handle this abominable road surface – balancing my weight evenly on the bike, I leave my hands loose and let the bike find its own way. Finally I reach the cheering crowds at the summit of the berg, and it's all downhill from here. **C**

As the Koppenberg starts to bite, I'm juggling the quadratically steep gradient with my route through the crowds

Above: With no gutters to ride in, there's no hiding place on the Koppenberg



Bikes are willingly left where they land at the finish – everyone's gone to the cafe

At the finish I raise a weary arm aloft, before slamming on the brakes to avoid the hordes of riders taking selfies

What starts off as an amble, with everyone catching their breath after the Paterberg, slowly gains speed towards the finish and grows into a full-on train. With Herbie and two Flandrians taking turns on the front, I glance down to see 50kmh pop up on my Garmin on flat roads.

As the line approaches, our growing pack readies for the final sprint, even though the fastest finishers came in long ago. I fly under the banner and raise a weary arm aloft, before slamming on the brakes to avoid the hordes of riders taking selfies around the finish line.

As I settle down in a cafe, my bones simply don't feel right. I'm dehydrated to the point of mummification and I fear it could be days before feeling returns to my perineum. Despite the satisfaction of covering 245km in a day, I slightly resent the first 100km – it only served to dilute the charm of the cobbles, and hampered my opportunity to attack them as hard as I would have hoped. Next time, maybe I'll choose the mid-distance event, but one thing is for certain, I know the cobbles will draw me back again. **•**
Peter Stuart is Cyclist's answer to Cancellara. We're just not sure what the question is



Do it yourself

TRAVEL

Cyclist drove to the Ronde, taking the Eurotunnel from Folkestone to Calais and driving about an hour to Bruges. Easyjet flies to and from Brussels, a short drive from the finish.

ACCOMMODATION

Remaining for the pro race the day after the cyclosportive, we stayed at two hotels. The first, d'Hofstee ter Zuidhoek in Roeselare, was a nice spot between Oudenaarde and the start in Bruges. On the night after the race, we stayed 10km outside of Oudenaarde at the Castle of Lozer, which sits across from a stately castle and moat. We stayed in one of the large outbuildings that were once used by the 'downstairs' staff. Breakfast is taken in the kitchen with the hosts.

THANKS

Many thanks to Anita Rampall from Visit Flanders for arranging accommodation and assisting with our trip. Go to visitflanders.co.uk for info. Also to Thule for the loan of its roof bars and bike rack.



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Festka One

p184



Colnago V1-r

p190



Focus Cayo 3.0 Disc

p196



Cube Axial WLS

p202

Festka One

Bespoke brilliance with incredible paintjobs
(even if this one happens to be black)



Words JAMES SPENDER



THE SPEC

Model
Festka One
Groupset
Campagnolo Super Record EPS

Deviations

None

Wheels

Campagnolo Shamal Mille

Finishing kit

3T Ergonova Team Stealth bars; 3T Arx II Team Stealth stem; 3T Doric LTD seatpost; Selle San Marco Concor FX saddle

Weight

6.8kg

Price

**£6,899 complete
£2,399 frameset**

Contact

festka.com

How many famous Czech exports can you name? Staropramen? Skoda? Martina Navratilova? For cyclists, there might just be one more name to add to that list: Festka. At least, if the One is anything to go by.

Founded by friends Ondrej Novotny and ex-pro Michael Mourecek, Festka – Czech slang for fixie – began life less than five years ago when the pair decided they wanted to start a bike brand that offered bespoke, handmade frames made in their homeland.

‘In the beginning we thought we could make high-end steel fixies, so we approached some of the framebuilders here in the Czech Republic, but they turned us down, saying we were dreamers,’ says Novotny. ‘They said it couldn’t be done, there is no market to be selling 200 handmade frames a year. So we realised we needed to do it ourselves, and that’s when we created Festka.’

That was back in 2010, and since then Festka has added carbon and titanium to its original portfolio of

steel bikes, raising quite a few eyebrows along the way with the likes of the all-chrome, double disc wheeled Motol (well worth Googling); the Projekt 200, a crowd-funded carbon frameset that later evolved into the Festka Zero, and lately the pledge to build the bike that Czech rider Ondrej Sosenka hopes will propel him back to being the Hour record holder. But it was the fully bespoke One that caught *Cyclist*’s attention when it surfaced late last summer in an array of eye-popping paintjobs, so we pestered Novotny to send us one to test. Somewhat sadly, the particular One that arrived at the *Cyclist* office was much more understated than the acid-tripping-cubist look I’d been hoping for. But any disappointment was short-lived. For the One, in any guise, is superb.

Seek professional help

Festka has set out to become Europe’s answer to the likes of Alchemy or Parlee. That is, Festka aims to produce the highest-quality framesets, by hand and from locally

**FRONT END**

The Festka One shuns the *de rigueur* internal headset bearings in favour of proudly displaying its oversize Chris King cups. While physics might dictate that internal bearings make for a stiffer front assembly, you'd be hard pushed to fault the One's set-up – steering and feedback was never less than pinpoint. Plus, the external cups lend the One a pleasingly traditional look.

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▷ sourced materials. So while Parlee works with Utah-based Enve to develop its tubesets, Festka has looked 130km down the road from its Prague workshop to team up with Czech carbon fibre specialists CompoTech.

The upshot is Festka uses what Novotny describes as 'professional framebuilders' who are able to exploit CompoTech's background in lightweight motorsport components and carbon fibre yacht masts. It's an obvious way of doing things – sometimes overlooked by start-ups – and in terms of craftsmanship alone, it's an approach that has come to fruition in the One's frameset.

We'll get to the ride quality in a moment, but first let's examine the paint. Despite being mainly black, the One manages to transcend black by being, um, even blacker. There's a deep lustre to the glossy finish, which is accentuated by the pin-sharp fluorescence of the logo. Novotny says a given paintjob can increase the One's frame weight by anything up to 150g (although Festka offers a raw carbon finish too), however the payback, he says, is durability – which after some pretty dirty, flint-riddled country miles I'd agree with. The paint still looks as good as new. Plus, at 6.8kg on the nose, such things are trivial to all but the weeniest of weight watchers.

That weight owes a fair amount to the Campagnolo Super Record EPS groupset, which tips the scales at a hair over 2kg with a mid-model year update. Likewise, the latest versions of Campagnolo's enduring classic, the Shamal wheel, adds a 'Mille' to its title and contributes a claimed 1,426g to the One's overall weight – 70g more than a comparable pair of Mavic Ksyrium SLRs, but roughly £100 cheaper at £940 a pair.

Like the Ksyriums' Exalith treatment, the Shamals have a special braking surface where a spiral groove is milled into the brake track to improve stopping performance without creating the whirring noise associated with the Ksyrium (whose Exalith surface runs perpendicular to the rim, the effect being a bit like running your finger along a file). In practice, while there was no squealing there was a bit of a 'fizz' when applying



The One feels planted when cornering but ever so deft when skipping through potholed minefields

brakes, but if it's an issue at all (I rather like a robotic timbre to my rims) it's offset by improved braking, that's most noticeably in the wet.

However, for me the stars of the component show weren't these higher-ticket items, but, surprisingly, a pair of tyres from a brand I vaguely recognise from the mid-90s mountain bike scene but had long since thought perished like a pair of forgotten tubs. That brand is Tufo, another Czech outfit, and the tyres are the incredibly light Calibra Lites, which weigh less than 150g each (23c), making them the lightest clinchers I've come across. ◁

WHEELS

Campagnolo's Shamal Mille wheels might resemble their Fulcrum Racing Zero Nite cousins in rims, but in spoke lacing they stick resolutely to the Campy-only 'G3' pattern, where 21 rear spokes are clumped in threes to decrease road vibrations and increase lateral stiffness. For Cyclist's money, they work a treat.



► I can't vouch for their longevity – they don't look as though they would survive months of punishment – but if you're looking for a tyre to transform the feel of your bike, the Calibras are like rocket fuel. But of course all that would be useless without a decent frame to hang from.

And what a frame it is

The One is class. It feels planted when cornering but ever so deft when skipping through potholed minefields, reacting sharply but proportionately to rider inputs. Climbing could only have been bettered by somehow shedding more weight, with the bottom bracket and chainstays and front assembly coping easily with big out-of-saddle efforts. This stiffness gives the One a brilliant turn of pace on the flat, especially given that it's a very traditional frame shape with no aero pretensions.

However, as it seems is so often the case with high-end bespoke bikes, it's the combination of all these factors that stands out. Or in other words, it's the ride quality and hence the riding experience that marks out the One from a sea of competitors.

It's not so much that the One is overtly plush, because it isn't – the trend-bucking 31.6mm seatpost (Festka says



it could offer the One as 27.2mm by way of a permanent shim insert) provides a sturdy seated position, which while never uncomfortable is still on the firm side. Rather, it's because the One displays a powerful, highly tuned race bike character when pushed, but easily sinks back into a relaxed state when cruising. Moreover, it flits between the two with modulated ease – the more you push, the more you get back from the One; the more you back off, the more placid it becomes.

The One's quality is made even more impressive by the fact that this bike wasn't designed for me. As mentioned, each Festka One is made to measure. Tubes come in from CompoTech, are measured, cut, mitred and wrapped to form the finished product. Thus, tubes can be selected for their different properties and each junction wrapped just-so to create a frame with ride characteristics to suit the style and expectations of the customer. So if this 'stock' One is this good, I can't begin to imagine how a One created explicitly for me might have performed. I do know it would have some seriously crazy paint, though. Trust me, Festka can do that too. ♦



TUBES

Festka called upon Czech compatriots CompoTech to provide the tubesets for the One, but putting them together is all Festka. The company has the skills to not just make its own frames, but to repair other manufacturers' carbon frames too. Quotes are by the job, but Festka reckons a typical repair like a cracked chainstay costs around £150.

The more you push, the more you get back from the One; the more you back off, the more placid it becomes

The detail



The rear of the One is a thing of understated beauty. Elaborately machined titanium dropouts are bonded into the chainstays and screwed and bonded into the seatstays. While this looks pretty, it also serves a purpose – by screwing the seatstays to the dropout, Festka can use the same dropouts for a variety of different size framesets (as the screw offers a pivot point to adapt to the angle of different frame size's seatstays). Furthermore, it affords the possibility of using a belt drive system, as the frame can dislocate to insert the belt. However, the most obvious upshot for the One was snappy shifting. So often bikes come into Cyclist with less than square mech hangers, but the properly faced-off titanium dropouts gave the One's mech hanger a solid, square point of contact that made shifting with the Super Record EPS a treat.

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Colnago V1-r

The V1-r is Colnago's latest collaboration with Ferrari, but is it a stallion worthy of the legendary prancing horse emblem?



Words STUBOWERS



THE SPEC

Model

Colnago V1-r

Groupset

Campagnolo Super Record RS

Deviations

Colnago V1-r direct mount brakes

Wheels

Mavic Ksyrium 125 Year Anniversary edition

Finishing kit

Deda Superleggera bars and stem, San Marco Aspide Superleggera saddle

Weight

6.55kg

Price

£3,000 frame and fork.
£7,000 (approx) as tested

Contact

windwave.co.uk

Colnago needs as little introduction in the bicycle world as Ferrari does in automotive circles, so it's fitting that the two Italian legends have once more collaborated, just as they did to create the first carbon Colnago frames in the mid-1980s. Enzo Ferrari may no longer be alive to see the V1-r bear his company's legendary Cavallino Rampante (prancing horse) and Ernesto Colnago, now 83, may no longer be on the workshop floor as he would have been back then, but the powerful influence of both men lives strong, and it's a bit of that magic I was hoping to find rekindled at the heart of this latest creation.

With its enviable heritage, Colnago has never seen the need to entice potential customers with hi-tech claims or reams of performance statistics – but times are changing. Not only has competition grown fierce in the marketplace, so too the pro teams (Colnago sponsors Team Europcar) are increasingly demanding those all-important marginal gains, and I believe the V1-r is

Colnago's response. It was launched at almost the same moment as its latest flagship C60 (reviewed issue 27) last autumn, and it feels as if the two bikes are designed to fulfil different needs. The C60 is pure Colnago, in the best traditions of the brand, while the V1-r is made to compete against the army of superlight and aero bikes that are appealing to a new breed of tech-savvy racers.

Stepping out

The Taiwanese made V1-r is the lightest frame to ever bear the Colnago logo, thanks in part to Ferrari bringing its carbon fibre expertise to the project by guiding the material choices and lay-up. At a claimed 835g it's lighter than the Pinarello Dogma F8 but still a bit behind the mark set by the likes of the Cannondale SuperSix Evo and Trek Émonda. Of course, the other subject matter that a team of leading F1 engineers knows a thing or two about is aerodynamics, and it's clear the V1-r has been given more than just a bit of attention in this

**MOTIF**

The top tube of the V1-r is proudly adorned with the legendary *Cavallino Rampante* (prancing horse) emblem of Ferrari, as a sign of the motor company's input into material choices and aerodynamics.

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With its enviable spec, I realised quickly that the V1-r was going to flatter my every effort

regard. Practically every tube has been contoured, predominantly conforming to the truncated aerofoil (Kammtail) principle, with rounded leading edges and a squared-off tail. This, Colnago claims (in line with other notables using the same concept), offers the best of both worlds, providing similar benefits to a classic teardrop aerofoil shape, but by removing the tail improving its all-round performance in mixed wind directions.

My relationship with the V1-r began positively. Our test model arrived as just a frame, so I had the freedom to build it up as I liked. I initially set the bike up with a solid carbon San Marco Aspide Superleggera saddle, thinking my first few rides would probably be fairly brief and I could swap it for something more padded if it proved to be uncomfortable. Rather unexpectedly, more than five hours into my first outing I hadn't even thought about

CONCEALED BRAKE
Colnago's design has come no closer to swaying my view that positioning the rear brake calliper under the chainstays, behind the BB, is a mistake. It's inherently fiddly to set up, resulting in poor lever feel and pads that frequently rub the rim during out-of-the-saddle efforts.

it, and a further hour later I arrived home still none the worse for the experience.

I'd classify the ride feel as being at the firmer end of the spectrum but not uncomfortable, especially given my unforgiving perch, which at least allowed me to feel precisely what the frame was dishing out in terms of bump forces. It wasn't so much that the bike was negating the harshness of the saddle – a lack of padding doesn't necessarily mean it will be painful to sit on (see p45) – but it was nonetheless a good insight into the way the frame coped with vibrations from the road. And, in fact, the full-carbon saddle stayed put throughout my testing as I never felt the need to swap it.

Live wire

I was fortunate enough to have an enviable spec for the V1-r, including Campagnolo's limited-edition Super Record RS groupset and Mavic's 125th Anniversary Ksyrium wheels. It left very little room for improvement, and the resulting weight was a mere 6.5kg. I realised quickly that the V1-r was going to flatter my every effort. It's a solid build with a robustly engineered bottom bracket shell that facilitates a wide connection with the down tube. It felt practically immovable beneath my pedal strokes. The front end too delivers solidity through the fork into the head tube, backed up by the pleasingly stiff Deda bar and stem combination.

The top tube is beefier than many top-end lightweight frames, but I think it's a few extra grams well spent, given the crucial supporting role it plays in keeping the rear and front end tightly connected. However I rode the V1-r, be it in or out of the saddle, hunkered down to force the pace or leaning deep into a corner, there was



SEAT CLAMP

Colnago has bucked the current trend of concealing the clamp for its aero-profiled seatpost into the frame design, instead opting for the more traditional band and bolt system.



The detail



Colnago's distinguished *Asso di Fiori* (ace of clubs) logo, still undoubtedly a sign of prestige in the bicycle industry, once signified a bike frame entirely handmade in Italy. For its flagship C60 this remains true, but for the V1-r Colnago has, like practically every one of its competitors, sought the expertise on tap in the Far East to deliver a frame that conforms to the current industry-wide drive for lighter, stiffer and more aerodynamic bikes, not least because Colnago once more sponsors the Europcar Team as it embarks on its 2015 season.

no doubt its capabilities. It's a bike that cheekily encourages you to push even harder.

It's rare I test a bike without finding a few chinks in its armour, though. Firstly, that old rear brake issue rears its ugly head once more. As I've said before about this odd trend for mounting the rear calliper under the chainstays, it brings more problems than benefits. Frequent pad rub, fiddly set-up and a soft, poorly modulated lever feel were a few of the issues I experienced. The direct mount front brake feels superb, but this further highlights the poorly performing rear. Also, while not directly a fault of the bike, the Super Record RS gears required constant tweaking to keep them quiet, something that the other groupset manufacturers seem to have sorted long ago.

It's undeniably fast and very capable at speed, but I'd stop short of outstanding

I'm sure these niggles could be overcome, or at least reduced to a more acceptable level, so they're not really deal breakers. It's undeniably fast and very capable at speed, but I'd stop short of outstanding. If you want to whip up steep inclines the V1-r is not going to hold you back, but it's not the best mountain climber I've ridden.

Aerodynamics are tough to assess from road tests alone, and again the V1-r is certainly no slouch, but it's not the strongest performer in this field either. So, where does that leave it? It's hard to pinpoint the outstanding feature that would make this bike a must-buy, other than the fact that it is, after all, a Colnago. For many people that will be enough, especially given the Ferrari collaboration on this model. For me, though, I expected those two legendary heads to have come together to produce something extraordinary, but while I enjoyed the ride, I didn't feel the magic. ♦



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Focus Cayo 3.0 Disc

Discs are here, so it's time to find out whether Focus's mid-range champion is the better for it



Words PETER STUART



THE SPEC

Model

Focus Cayo 3.0 Disc

Groupset

Shimano Ultegra

Deviations

**Shimano RS685 levers,
Shimano RS685 hydraulic
disc brakes**

Wheels

DT Swiss R24 Spline

Finishing kit

**CPX Carbon stem, Concept
EX handlebar and seatpost**

Weight

8.47kg

Price

£2,299

Contact

derby-cycle.com

When Focus's engineers set out to produce the Cayo Evo, this bike's predecessor, they saw it as the more comfortable bike in the range, an alternative to the lightweight, race-oriented Izalco. They sent their plans to the factory, but to the amazement of the engineers the frame returned at a svelte 980g, lighter than the range-topping Izalco. It was a triumph of engineering over logic. And now, with the Cayo redesigned to accept disc brakes, the same thing has happened. Grams have miraculously been trimmed and, at 880g, the Cayo is the lightest mass market disc-equipped frame available.

Disc debate

The Focus Cayo Disc 3.0 is one of the most interesting bikes I've reviewed. That's not to say it's the best bike I've ridden, but rather that I find its approach to the conundrum of disc brakes intriguing.

Among the *Cyclist* team, enthusiasm for disc brakes on road bikes is high. I, however, remain slightly sceptical. For me, the benefits of disc brakes are less obvious, and I'm not sure I'd be tempted to part with my own money on a disc-equipped bike until certain questions about standardisation have been answered. Will the standard be 140mm rotors or 160mm? How will the wheels be removed: quick releases or thru-axle? If it's the latter, will their diameter be 12mm or 15mm? The industry has yet to agree, but the Focus Cayo has its own set of answers.

Focus has opted for thru-axles, where the wheel axle itself slides through the centre of the hub and locks into the fork or frame with a fully enclosed 360° dropout. That potentially leads to greater rigidity and more precise positioning of the wheel in the frame, meaning the twisting forces on the wheel shouldn't result in the disc brake rotor rubbing on the pads.

As for the axle diameter, Focus has decided to go for a 12mm axle on the back, and a chunkier 15mm axle on the front.



AXLES AND ROTORS

Focus has opted for thru-axles and 160mm rotors, in contrast to competitors such as Cannondale, which is equipping frames with 140mm rotors and using regular quick releases. Focus argues this helps the dissipation of heat and increases the system's rigidity.



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BOTTOM BRACKET
Focus has increased the stiffness around the bottom bracket compared to the previous generation Focus Cayo Evo, while also dropping the overall weight of the frame.

the front to combat the extra twisting forces that occur at the front wheel. The thicker axle requires a wider dropout at the end of the fork, which has allowed Focus to use a continuous thread of carbon that runs down the fork and around the dropout, which wouldn't be possible on the tighter angles involved with a narrower axle. The result is that it provides a very high tensile strength for a reduced amount of carbon and overall weight.

Focus has taken a cautious stance when choosing the rotor diameter, opting for the larger 160mm. Bigger disc rotors offer greater stopping power and superior heat

dissipation, but at the expense of added weight (plus some people think big rotors look ugly on road bikes). Clearly, when it comes to the brakes, Focus has given this bike a lot of attention, however I feel there is a problem with the new Cayo that's common to many disc-equipped bikes on the market – it lacks speed.

Slowing down faster

Disc brakes are still rarely seen at the racier end of the spectrum, but are finding a niche with 'sportive' bikes such as the Specialized Roubaix, Giant Defy or Cannondale Synapse. The previous Cayo was presented as a sportive bike, but it was still spritely. The Cayo Evo was even used at the top level by Ag2r's under-23 team. On paper, the new frame should be even racier, thanks to its lighter, stiffer frame, but the introduction of discs seems to have sucked some of the liveliness from the bike, and during testing I felt the new Cayo 3.0 Disc had a weighty feel that wasn't present with its predecessor.

Setting off from a low speed there seems to be a slower response, and even up at cruising speed there's a certain sense of resistance. I'm certain this fault does not lie with the frame, but rather with the heavily built wheelset. ◁

Setting off from a low speed there seems to be a slower response, and even up at cruising speed there's a sense of resistance





► The DT Swiss R24 Spline wheelset is advertised at 1,775g for the pair, which is perfectly reasonable for entry-level wheels. But once the tyres and disc rotors are added, we weighed the rear at 1.8kg and the front at 1.37kg. To compare, a set of disc-equipped Fulcrum 5s (once specced for a Cayo at this price) weigh 1.56kg at the rear and 1.12kg at the front. Cumulatively, that makes for around half a kilo extra on the DT Swiss wheels, which is a noticeable chunk of weight and contributes to the high overall weight of 8.47kg for the full build.

One of the original selling points of discs was the fact that wheels could be produced with greatly reduced weight at the rim. Without the need for a braking surface, the rim could do away with aluminium tracks or heavy heat-resistant resins at the outer edge, making for a faster spinning wheel. The reality, currently, is that low-end disc-specific wheels are being overbuilt to tolerate the big twisting forces coming from the hub, meaning potential weight savings are being lost. Of course, it's still early days for the development of disc brake wheels and it's a certainty that, given time, performance will go up while costs come down. But we don't seem to be there yet.

Aerodynamically, there's also a debate around disc brakes, with some estimates suggesting as much as eight watts of power could be lost at certain wind angles. There's no way to confirm such a penalty without a wind-tunnel, but it could have been a factor to the general lack of speed aboard the Cayo. When riding alone, I felt a kmh or two was being sacrificed, and in my usual groups I was working hard to keep up where normally I would

HYDRAULICS

With the new Cayo the hydraulics have been carefully routed through the 'Cable Routing Plate' on the head tube, which should make for easy changes between groupsets both electronic and mechanical.

The detail



Focus's Rapid Axle Technology (RAT) could potentially lead the pack when it comes to devising a way to quickly remove disc brake wheels. The problem has been that conventional thru-axles need to be slowly unscrewed from the dropout thread and then pulled out. It's far too costly in terms of time for the demands of the pro peloton. The RAT system requires you to push the axle into place, then rotate the lever 90° to engage the locking system. The system works with a T-shaped hook that turns and locks into a mechanism affixed to one of the non drive-side dropouts. It's a little fiddlier than it looks, and it requires some practise to position the release lever in the right position when inserting the axles so the rotation provides enough tension to lock it in place. But despite the niggles, this is a very impressively engineered solution to one of the core problems for disc brakes on the road.

I didn't find myself braking any later into corners, but rather found the more tactile brakes gave me confidence

cruise comfortably. But could the excellent braking performance make such sacrifices worthwhile?

The Cayo 3.0 Disc did stop faster than previously, but it was the control, lighter lever pressure and consistency that left an impression. In rain or shine, the brakes worked unfalteringly. Discs mean that when you begin to find yourself in a troubling situation on a descent or in a bunch, you remain in complete control where once you may have found yourself with white knuckles. Yet, despite all that, I didn't find myself braking any later into corners, but rather just found the more tactile brakes gave me extra confidence when slowing. Ultimately, speed remains the main currency of my cycling, and until a bike can offer improved braking without sacrificing watts, I'll remain unconvinced about the disc brake revolution.

To make a comparison, when I first tried an electronic groupset it created a giddy excitement in me that distorted the potential negatives of weight gain and maintenance beyond recognition. So much so, that when I rode a Focus Cayo Evo with Di2, I liked it so much I bought one. The introduction of a set of disc brakes didn't stir the same excitement. So for now, if I was standing in a bike shop with credit card in hand, I would be looking towards the top-end calliper brake Cayo ahead of this disc brake model. But if Focus continues to innovate with the technology surrounding discs, I remain open to being convinced of the system's superiority in the future. *

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Cube Axial WLS GTC SL

You get a lot for your money with Cube's women's bike, yet that doesn't make it the cheap option



Words SUSANNAH OSBORNE



THE SPEC

Model
Cube Axial WLS GTC SL

Groupset
Shimano Ultegra 6800

Deviations
None

Wheels
Fulcrum Racing 55 LG

Finishing kit
Selle Italia X1 WLS saddle,
Cube Wing Race bars, Cube
Performance Pro stem,
Cube Performance Motion
seatpost

Weight
7.9kg (size 50)

Price
£1,799

Contact
cube.eu

If this bike was a celebrity, I reckon it would be someone cool, clever and attractive – think Emilia Fox or Sheridan Smith. These ladies may not be camping out with the A-list in the Hollywood hills but they are credible, hard working and glam enough to get noticed.

With that in mind, it was hardly surprising that on my first outing on the Cube Axial I found two keen admirers. Both skipped the introductions and insisted on immediately discussing the intimate details of this bicycle, which may seem a little forward, but with an attention-grabbing colour scheme and an impressive spec it's obvious why this bike draws approving glances.

Stand up, look sharp

Cube's Woman Like Series (WLS) comprises four road bikes with the WLS GTC SL at the top of the range. On paper it's a modest offering when you consider that Specialized's top-of-the-range, women's-specific

Ruby Pro is more than twice the price of the Axial. Yet despite its price point, this bike is far from average.

The Axial doesn't look like a women's bike. The 'redwood 'n' flashed' colour scheme is the antithesis of what we women are supposed to like, and the lower profile set-up is more race focused than sportive – something that's refreshing to see.

Internal cabling creates a slick silhouette that makes the bike look just that touch more pro than many of its peers. I get the sense that Cube has thought about this carefully. On looks alone the GTC SL has the potential to be a nippy ride.

While it's always hard to determine what's going on under the paintjob by reading the marketing blurb, Cube claims the Axial uses high-modulus fibres to create a stiff frame that's further aided by a chunky head tube and bottom bracket shell. Fairly standard stuff so far then.

On the road this translates into a responsive ride. I was wholly confident in the bike's ability to hug a line



The Axial
doesn't really
look like a
women's bike.
The colour
scheme is the
antithesis of
what women
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When I swapped the wheels for something racier, the Axial became something I'd happily use in a crit race

► through a corner or to kick away in a sprint, and I sensed my power was being used efficiently to propel the bike forwards. At first I felt a touch precarious on fast descents as I found it hard to get my weight far enough over the front of the bike to feel fully in control. Slamming the stem went some way to resolving this, however.

While this is a stiff frame, I'm not saying that it's unforgiving. Thin seatstays not only look good but also go some way to bridging the gap between this being a pure race machine and a bike that gives a comfy ride. The Axial certainly absorbed a fair amount of vibration on long rides over Surrey's finest tarmac, but when the going got really bumpy I found my arms getting tired and my backside getting sore – but then I guess that's the payoff for a stiff, racy frame.

Indeed, it was refreshing to ride a punchy women's-specific bike. This is a good all-rounder that would well suit a pacy local club run, or a week in the mountains (as long as the roads were in decent nick). And when I swapped the wheels out for something a little lighter and racier – Mavic Kysrium SLS (around £600) – the Axial became something I'd happily use in a local crit.

If I were buying this bike, I would be making some tweaks. The 11-32 cassette is a fashionable addition – there

seems to be a trend at the moment for adding a massive 'safety' sprocket – but if this really is a bike that's made for performance it needs to go. Admittedly it's nice on occasion to bumble along without ever having to shift out of the big ring, but unless you're climbing the Hardknott Pass – a heinous 30% climb in the Lake District – then you'll never really need that 32-tooth sprocket. Anything more than a 27t and you're just cheating. What's more, if you plan to race on this bike, the spread of gears could hold you back. I found the big jumps between sprockets (a knock-on of the wide range to 32t) annoying at times.

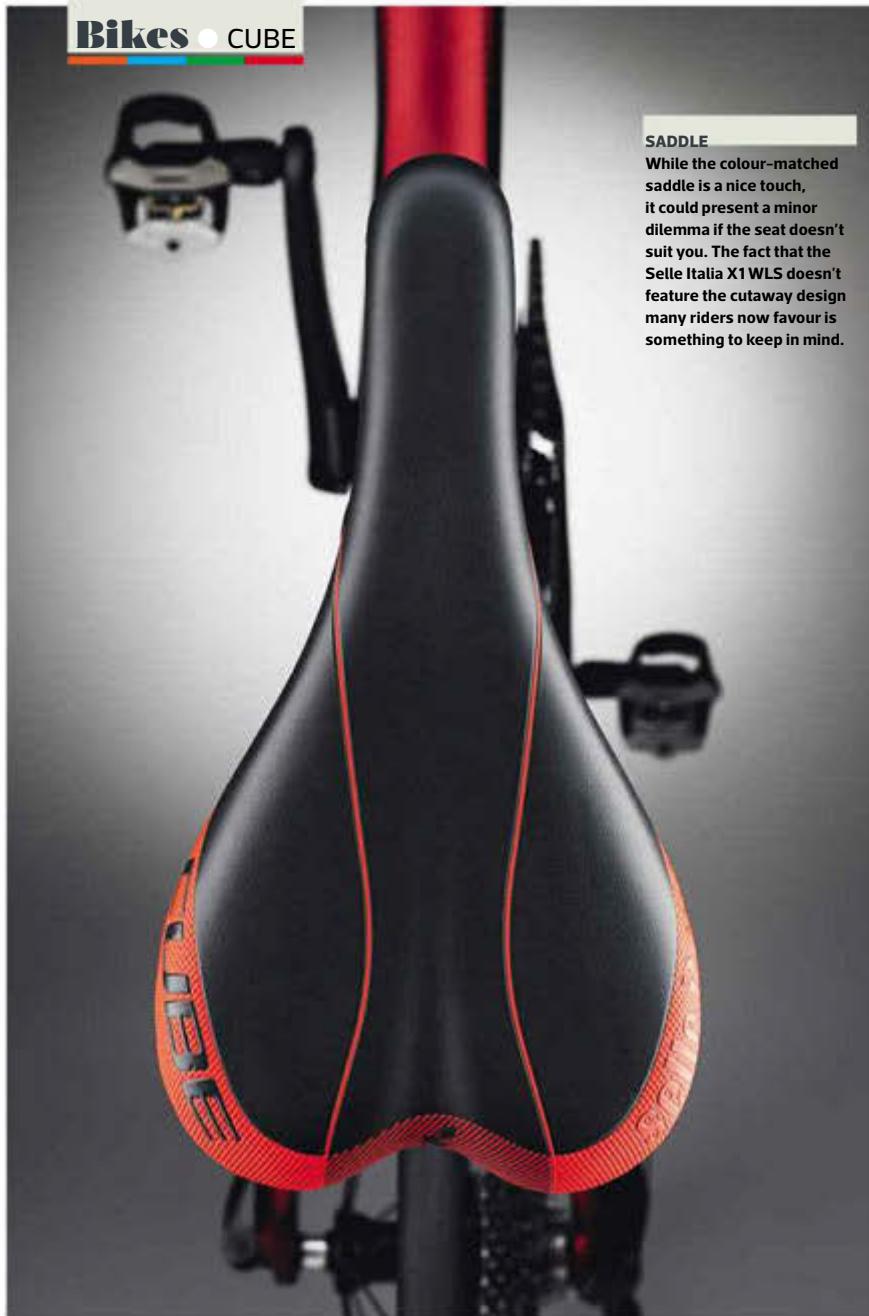
Is it ladylike?

Some manufacturers gloss over the need for geometry that fits the female form, while others embrace the concept, and sometimes take it too far. Cube's 'Woman Like Series' may sound a tad Tarzan and Jane, but it does seem to be an intelligent approach.

For starters, Cube hasn't simply taken the easy option and aimed the Axial wholly at the sportive market – it's more versatile than that. According to Cube this is a bike that's 'designed with performance in mind, and with performance comes endurance', and despite this clumsy clutch of nouns, the result is really rather slick. ◉

SPECIFICATION

The Axial's overall build is impressively specced for this price, in contrast to many other women-specific designs on the market. The Ultegra groupset, Fulcrum 55 LG wheels and Schwalbe One tyres are generous at this price point.



SADDLE

While the colour-matched saddle is a nice touch, it could present a minor dilemma if the seat doesn't suit you. The fact that the Selle Italia X1 WLS doesn't feature the cutaway design many riders now favour is something to keep in mind.

The absence of pink, purple, flowers or swirly calligraphy is a big relief



in the wet, or on damp roads, and the tyres performed confidently in and out of corners.

The Selle Italia X1 WLS saddle was comfortable from the outset and equally so after 100km. On seated climbs I felt supported and relaxed. The Wing Race Bars sound like they're going to offer some kind of aero advantage – not that it was noticeable – but I liked the large flat surface, which offers something chunky to grip onto. Others may find them a touch wide for petite hands.

Cube prides itself on making bikes in colours and styles that 'others simply don't dare', and the absence of pink, purple, flowers or swirly calligraphy is a big relief. The burnt orange and rusty red colour certainly makes the bike stand out from the crowd, but for me what's best about this Axial WLS GTC SL is that it's a bike made for women who want more than a slow, comfy ride. ♦

► The Axial is available in four sizes – 47cm, 50cm, 53cm and 56cm. To accommodate a female body the bike is proportionally shorter than a unisex bike. However, I was surprised at just how short the top tube is – on a 53cm frame it's 51.5cm, so it's worth studying the geometry before choosing your size.

The level of spec on offer with this bike is impressive, especially given the pricetag. For a £1,799 women's bike to carry a full Shimano Ultegra groupset is a bit of a shock (in a good way). At retail, the groupset alone would set you back around £500.

The WLS GTC SL comes with Fulcrum Racing 55 LG wheels (basically the same as Racing 5s). This is good because, for a complete bike at this price, I'd expect to see the budget Fulcrum Racing 7s specced. What's more, this is the same wheel that's offered on unisex Cube bikes at the same price point, which makes a contrast with some manufacturers that supply bottom-of-the-range wheels on women's bikes as a matter of course.

The Schwalbe One 25c tyres are good all-rounders with decent grip. Many of my test rides were carried out

The detail



One of the reasons this bike looks so sharp is that both the Fulcrum 55 LG wheels and the Selle Italia X1 WLS saddle are colour-matched to the frame. Such attention to detail is consistent across all four of the Axial models – the model below this one, the GTC Pro, features a peppermint-coloured accent across the top tube, fork, saddle and the wheels. The reason Cube can be this savvy when it comes to style is its scale of production. The German manufacturer carries around 4,500 bikes as stock and has distributors in 47 countries.



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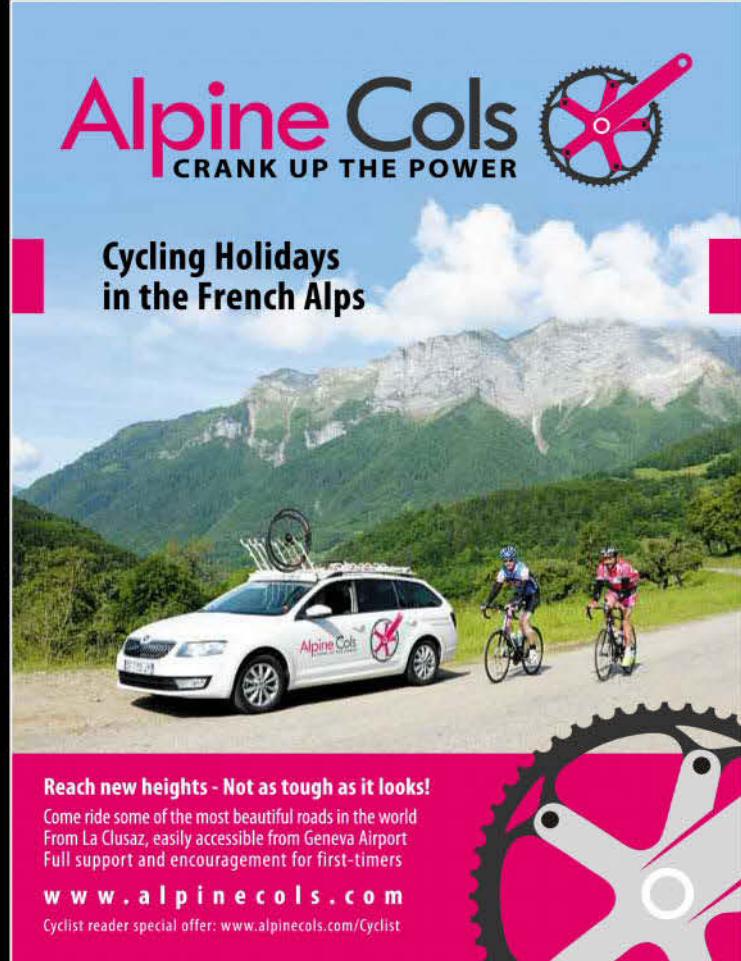
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Rapha Pro Team Soft Shell Jacket, £200
rapha.cc

Sportful Flandre No-Rain Top, £100
c3products.com



Out Of The City p116

Rudy Project Sterling helmet, £135.99
yellow-limited.com

Endura FS260-Pro jersey II, £49.99
endurasport.com

Endura FS260-Pro bibshorts, £99.99
endurasport.com

Pearl Izumi Elite Road III shoes, £159.99
madison.co.uk



Storming The Fortress p80

Spiuk Dharma helmet, £119.95
silverfish-uk.com

Assos SS.Cento_S7 jersey, £149.99
yellow-limited.com

Assos T.Cento_S7 bibshorts, £219.99
yellow-limited.com

Assos S7 Intermediate socks, £14.99
yellow-limited.com

Fizik R3 Uomo shoes, £215
extrauk.co.uk



Group Dynamics p158

Campagnolo groupsets
chickencycles.co.uk

Shimano groupsets
madison.co.uk

Sram groupsets
fisheroutdoor.co.uk



Bikes p183

FESTKA

Giro Aeon helmet, £159.99 zyro.co.uk
Oakley Radarlock Path XL glasses, from £195 uk.oakley.com

Etxeondo Summum jacket, £260
etxeondo.com

Etxeondo Attaque bibtights, £180
etxeondo.com

Etxeondo Gor gloves, £70
etxeondo.com

Northwave Extreme Tech Plus shoes, £299.99 i-ride.co.uk

Castelli Toe Thingys, £15
saddleback.co.uk

COLNAGO

Smith Overtake helmet, £200
saddleback.co.uk

Oakley Radar Path custom glasses, from £195 uk.oakley.com

Sportful Flandre Light NoRain Top, £100
c3products.com

DeFeet E-Touch Dura gloves, from £17.99
i-ride.co.uk

Sportful Flandre NoRain bibshorts, £79.99
c3products.com

Sportful WS Bootie Reflex overshoes, £45
c3products.com

FOCUS

Mavic Cosmic Ultimate helmet, £150
mavic.com

Oakley Radarlock Path glasses, from £175
uk.oakley.com

Le Col Sport winter jacket, £170 lecol.net

Le Col Sport winter tights, £140 lecol.net

GripGrab Neoprene Gloves, £39.95
gripgrab.com

Bont Vaypor+ shoes, £249
saddleback.co.uk

CUBE

Giro Amare helmet, £99.99 zyro.co.uk

Vulpine Women's Ultralight quilted thermal jacket, £169 vulpine.cc

Sportful Women's Diva bibtights, £105
c3products.com

Sportful Neoprene gloves, £32
c3products.com

Pearl Izumi P.R.O. Leader II shoes, £229.99
madison.co.uk



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Blue Sky thinking

After Team Sky's miserable 2014, what's the plan for this year? Eurosport blogger Felix Lowe stumbles across a secret memorandum...

When my aged aunt was holidaying on the island of Mallorca recently, she couldn't help noticing a strange band of skinny men dressed in black emerging from a huge bus emblazoned with the logo of a well-known satellite TV company. One of the men, whom she described as 'resembling the sporty younger brother of BBC politics editor Nick Robinson', was plainly in charge, and as the group disappeared into a luxury hotel, a piece of paper dropped from the bald man's rear pocket.

Curious, my aunt picked up the paper and read it, but it made little sense to her, so she posted it to me to see if I could understand its content. This is what it said:

'Dear Team, I thought I'd outline our targets so that we're singing from the same blank sheet.

'Minor benefits will, as always, be key. Take care of your appearances. Vasil, remember to zip up your jersey. There were times last year, with your "S" hanging limp from your "KY", when it looked as if we were sponsored by a popular brand of lubricant. Rupert wasn't happy.

'Talking of gelatinous substances, we're doubling your daily dosage of high-quality fish oil. To save time, four grams will be added to your organic agave nectar gels. When cold, we'll mix with a bidon of sweet tea. Admittedly, taste may be compromised – but broken eggs, omelettes, and all that.'

'Which brings me on to other unsavoury stuff. Remember Geert Leinders, the freelance doctor we carelessly employed despite his murky past? No, he hasn't joined the others at Tinkoff-Saxo. He's been banned. And to avoid any more potential banana skins, steer clear of anyone previously associated to Rabobank. Kazakhs are off limits too.'

'In fact, Wout excepted, there'll be no fraternising with the Dutch either. Or the Spanish. Or anyone older than 30. It's just not worth the hassle. But do speak to the French boys. They're fair game. In fact, I want you to tap up all the French talent you can find for a future pet project of mine.'

'The key to winning this year will be not crashing. Or getting ill. If you're feeling ropey then go into quarantine. We're cutting no corners this year. My thirst for becoming the most consistent team in the world will not be quenched by regular crashes in the Classics. Wear knee pads and wrist guards if necessary – and avoid Tyler Farrar.'

'In terms of actual targets, it's all about the Tour. Richie, we love you, but you have no chance in the Giro. Use Leo and Sergio to run Tinkoff ragged so that Contador will be cooked come July. Then Froome will strike back. As for the Vuelta, I'll let you battle it out between yourselves for Fantasy points.'

'Regarding the Classics, there's no reason why Wiggo, G, Yogi and Bernie cannot all make the top five in Roubaix. If Brad wins, Froome's in charge of the party. If he doesn't, then please let him win the Tour de Yorkshire for Team Wiggins. That was the agreement we made last July, right, Bradley?'

'To summarise, keep looking at the bigger picture. I may wear stylish, thick-framed media glasses, but I'm all about 20/20 vision. We succeeded in inspiring one million people to take up cycling; now I want one million people buying replica Sky jerseys from Rapha. Although, within the next five years I also want a Tour team made up entirely of national champions so that the trolls on Twitter can't complain about our boring kit.'

'We were once so feared that our staff were Stormtroopers and our bus was the Death Star. Let's revive the beast. This year, The Force awakens. The rebellion of Contador, Nibali and the new hope, Quintana, must be crushed. There'll be no flukes, Sky riders. If I sound like your father, it's because I am – in a manner of speaking. And with our combined strength we can end this internal conflict and restore a sense of order.' ❶
Felix Lowe (whose aunt has never set foot in Mallorca) is author of Climbs And Punishment.



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